=> d his

(FILE 'HOME' ENTERED AT 08:20:40 ON 01 APR 2003)

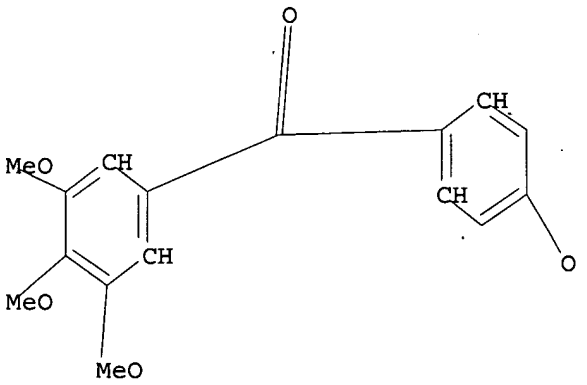
FILE 'REGISTRY' ENTERED AT 08:21:21 ON 01 APR 2003
E PHENSTATIN/CN
L1 1 S E3

FILE 'CAPLUS' ENTERED AT 08:23:53 ON 01 APR 2003
L2 7 S L1
L3 3 S CANCER AND L2

FILE 'REGISTRY' ENTERED AT 09:02:57 ON 01 APR 2003
L4 STRUCTURE UPLOADED
L5 0 S L4
L6 21 S L4 FULL

FILE 'CAPLUS' ENTERED AT 09:03:47 ON 01 APR 2003
L7 35 S L6

=> d l4
L4 HAS NO ANSWERS
L4 STR



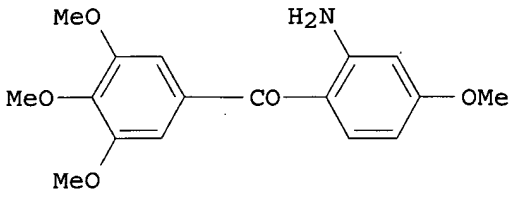
G1 Me,Et,n-Pr,i-Pr,P

Structure attributes must be viewed using STN Express query preparation.

=> d bib abs hitstr 1-35

L7 ANSWER 1 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 2002:354545 CAPLUS
DN 137:87840
TI Synthesis and Structure-Activity Relationship of 2-Aminobenzophenone Derivatives as Antimitotic Agents
AU Liou, Jing-Ping; Chang, Chun-Wei; Song, Jeng-Shin; Yang, Yung-Ning; Yeh, Ching-Fang; Tseng, Huan-Yi; Lo, Yu-Kang; Chang, Yi-Ling; Chang, Chung-Ming; Hsieh, Hsing-Pang
CS Medicinal Synthetic Laboratory and Molecular Biology Laboratory, Division of Biotechnology and Pharmaceutical Research, National Health Research Institutes, Taipei, Taiwan
SO Journal of Medicinal Chemistry (2002), 45(12), 2556-2562
CODEN: JMCMAR; ISSN: 0022-2623
PB American Chemical Society
DT Journal

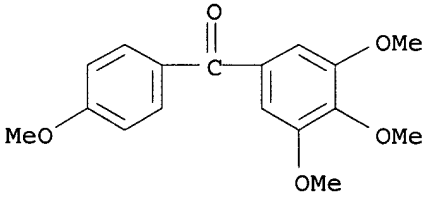
LA English
OS CASREACT 137:87840
GI



AB A new type of inhibitor of tubulin polymn. was discovered on the basis of the combretastatin mol. skeleton. The lead compd. in this series (I) strongly inhibited tubulin polymn. in vitro and significantly arrested cells at the G2/M phase. The lead compds. 6 and 7 yielded 50- to 100-fold lower IC50 values than did combretastatin A-4 against Colo 205, NUGC3, and HA22T human cancer cell lines as well as similar or greater growth inhibitory activities than did combretastain A-4 against DLD-1, HR, MCF-7, DU145, HONE-1, and MES-SA/DX5 human cancer cell lines. Structure-activity relationship information revealed that introduction of an amino group at the ortho position of the benzophenone ring plays an integral role for increased growth inhibition.

IT **109091-08-9P**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. and structure-activity relationship of 2-aminobenzophenone derivs. as antitumor agents)

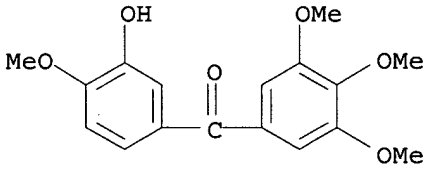
RN 109091-08-9 CAPLUS
CN Methanone, (4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 2002:348358 CAPLUS
DN 137:87838
TI Antineoplastic Agents. 465. Structural Modification of Resveratrol: Sodium Resverastatin Phosphate
AU Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J. Charles; Schmidt, Jean M.
CS Cancer Research Institute and Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ, 85287-2404, USA
SO Journal of Medicinal Chemistry (2002), 45(12), 2534-2542
CODEN: JMCMAR; ISSN: 0022-2623
PB American Chemical Society
DT Journal

LA English
OS CASREACT 137:87838
AB As an extension of structure/activity investigations of resveratrol, phenstatin, and the cancer antiangiogenesis drug sodium combretastatin A-4 phosphate, syntheses of certain related stilbenes and benzophenones were undertaken. The tri-Me ether deriv. of (Z)-resveratrol exhibited the strongest activity (GI50 = 0.01-0.001 .mu.g/mL) against a minipanel of human cancer cell lines. A monodemethylated deriv. was converted to prodrug (sodium resverastatin phosphate) for further biol. evaluation. The antitubulin and antimicrobial activities of selected compds. were also evaluated.
IT **203448-32-2**, Phenstatin
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. and antitumor structure activity relationships of resveratrol analogs)
RN 203448-32-2 CAPLUS
CN Methanone, (3-hydroxy-4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



RE.CNT 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 2001:617806 CAPLUS
DN 135:175360
TI Antiangiogenic combinations of nitroacridine derivs. and inhibition of tumor growth and metastasis and compositions thereof
IN Raj, Tiwari; Miller, Daniel; Konopa, Jerzy Kazimierz; Wysocka-Skrzela, Barbara
PA New York Medical College, USA
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

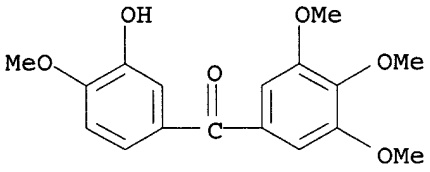
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001060351	A2	20010823	WO 2001-US5276	20010216
	WO 2001060351	A3	20020124		
	W: AL, AU, BA, BG, BR, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 2002037831	A1	20020328	US 2001-789496	20010216
	EP 1261325	A2	20021204	EP 2001-910944	20010216
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	US 2000-183529P	P	20000218		
	WO 2001-US5276	W	20010216		

AB The invention is directed to 1-nitroacridine derivs. as antiangiogenic substances and use in tumor growth and metastasis. Inhibitor(s) compns. as well as methods for using said compns. for inhibiting or preventing tumor growth, particularly, prostate cancer cells growth and metastases are presented.

IT **203448-32-2**, Phenstatin
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antiangiogenic combinations of nitroacridine derivs. and inhibition of tumor growth and metastasis)

RN 203448-32-2 CAPLUS

CN Methanone, (3-hydroxy-4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 4 OF 35 CAPLUS COPYRIGHT 2003 ACS

AN 2001:302771 CAPLUS

DN 135:76723

TI Preparation of ethyl 6-methoxy-7-methyl-1-aryl/cyclohexyl-4-oxo-2-naphthoates as an intermediates for synthesis of .beta.-apopicropodophyllin analogs

AU Nanjundaswamy, N.; Rai, K. M. Lokanatha; Anjanamurthy, C.; Shashikanth, S.

CS Department of Studies in Chemistry, University of Mysore, Mysore, 570 006, India

SO Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (2001), 40B(4), 274-277
CODEN: IJSBDB; ISSN: 0376-4699

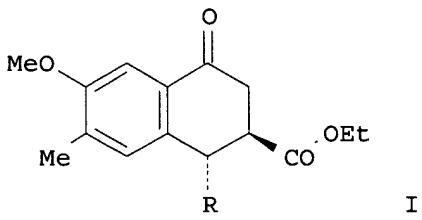
PB National Institute of Science Communication, CSIR

DT Journal

LA English

OS CASREACT 135:76723

GI



I

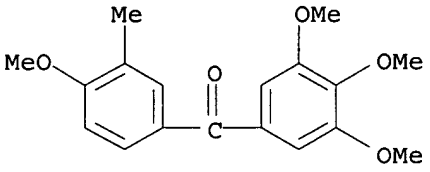
AB Tetralone esters I (R = Ph, 3,4,5-trimethoxyphenyl, cyclohexyl), which are intermediates for the synthesis of .beta.-apopicropodophyllin analogs, were prepd. via Stobbe condensation of benzophenone derivs. followed by Friedel Crafts intramol. acylation.

IT **347189-16-6P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. of Et 6-methoxy-7-methyl-1-aryl/cyclohexyl-4-oxo-2-naphthoates as an intermediates for synthesis of .beta.-apopicropodophyllin analogs via Stobbe condensation and Friedel Crafts acylation)

RN 347189-16-6 CAPLUS

CN Methanone, (4-methoxy-3-methylphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 5 OF 35 CAPLUS COPYRIGHT 2003 ACS

AN 2000:592560 CAPLUS

DN 133:198575

TI Compositions and methods for use in targeting vascular destruction

IN Pero, Ronald W.; Sherris, David

PA Oxigene, Inc., USA

SO PCT Int. Appl., 36 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

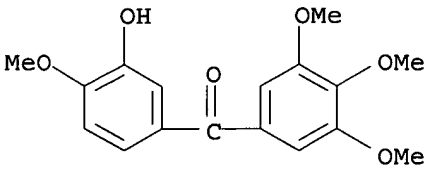
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000048606	A1	20000824	WO 2000-US3996	20000216
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2358925	AA	20000824	CA 2000-2358925	20000216
	EP 1152764	A1	20011114	EP 2000-914606	20000216
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002537262	T2	20021105	JP 2000-599398	20000216
	US 6538038	B1	20030325	US 2000-505402	20000216
PRAI	US 1999-120478P	P	19990218		
	WO 2000-US3996	W	20000216		

OS MARPAT 133:198575

AB Treatment of warm-blooded animals having a tumor or non-malignant hypervascularization, by administering a sufficient amt. of a cytotoxic agent formulated into a phosphate prodrug form having substrate specificity for microvessel phosphatases, so that microvessels are destroyed preferentially over other normal tissues, because the less cytotoxic prodrug form is converted to the highly cytotoxic dephosphorylated form.

IT **203448-32-2D**, Phenstatin, derivs.
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

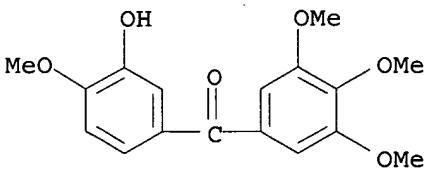
(prodrugs for use in targeting vascular destruction)
RN 203448-32-2 CAPLUS
CN Methanone, (3-hydroxy-4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

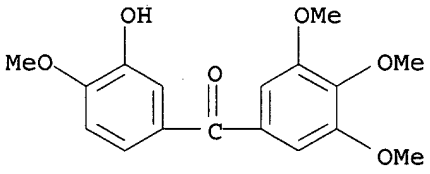
L7 ANSWER 6 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 2000:454837 CAPLUS
DN 133:234061
TI Comparative molecular field analysis of colchicine inhibition and tubulin polymerization for combretastatins binding to the colchicine binding site on .beta.-tubulin
AU Brown, M. L.; Rieger, J. M.; Macdonald, T. L.
CS Chemistry Department, University of Virginia, Charlottesville, VA, 22904-4319, USA
SO Bioorganic & Medicinal Chemistry (2000), 8(6), 1433-1441
CODEN: BMECEP; ISSN: 0968-0896
PB Elsevier Science Ltd.
DT Journal
LA English
AB A mol. modeling study using Comparative Mol. Field Anal. (CoMFA) was undertaken to develop a predictive model for combretastatin binding to the colchicine binding site of tubulin. Furthermore, we examd. the potential contribution of lipophilicity (log P) and mol. dipole moment and were unable to correlate these properties to the obsd. biol. data. In this study we first confirmed that tubulin polymn. inhibition (IC50) correlated (R2=0.92) with [3H]colchicine displacement. Although these data correlated quite well, we developed two independent models for each set of data to quantify structural features that may contribute to each biol. property independently. To develop our predictive model we first examd. a series of mol. alignments for the training set and ultimately found that overlaying the resp. trimethoxyphenyl rings (A ring) of the analogs generated the best correlated model. The CoMFA yielded a cross-validated R2=0.41 (optimum no. of components equal to 5) for the tubulin polymn. model and an R2=0.38 (optimum no. of components equal to 5) for [3H]colchicine inhibition. Final non-cross-validation generated models for tubulin polymn. (R2 of 0.93) and colchicine inhibition (R2 of 0.91). These models were validated by predicting both biol. properties for compds. not used in the training set. These models accurately predicted the IC50 for tubulin polymn. with an R2 of 0.88 (n=6) and those of [3H]colchicine displacement with an R2 of 0.80 (n=7). This study represents the first predictive model for the colchicine binding site over a wide range of combretastatin analogs.
IT **203448-32-2**, Phenstatin
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(comparative mol. field anal. of colchicine inhibition and tubulin polymn. for combretastatins binding to the colchicine binding site on .beta.-tubulin)
RN 203448-32-2 CAPLUS

CN Methanone, (3-hydroxy-4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 7 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1999:567462 CAPLUS
DN 132:180406
TI Synthesis of combretastatin A-4 derivatives, phenstatin, phakellistatin 5, and an approach to dolastatin 17
AU Toki, Brian Eric
CS Arizona State Univ., Tempe, AZ, USA
SO (1999) 369 pp. Avail.: UMI, Order No. DA9924211
From: Diss. Abstr. Int., B 1999, 60(3), 1093
DT Dissertation
LA English
AB Unavailable
IT **203448-32-2P**, Phenstatin
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of combretastatin a-4 derivs., phenstatin, phakellistatin 5, and approach to dolastatin 17)
RN 203448-32-2 CAPLUS
CN Methanone, (3-hydroxy-4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 8 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1999:451177 CAPLUS
DN 131:73506
TI Synthesis and formulation of phenstatin and related prodrugs for use as antitumor agents
IN Pettit, George R.; Toki, Brian
PA Arizona State University, USA
SO PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9934788	A1	19990715	WO 1999-US475	19990109

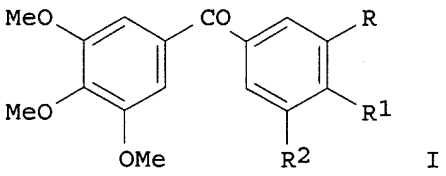
W: CA, JP, US
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,

PT, SE

	CA 2314510	AA	19990715	CA 1999-2314510	19990109
	EP 1045689	A1	20001025	EP 1999-902133	19990109
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
	JP 2002500184	T2	20020108	JP 2000-527239	19990109
PRAI	US 1998-70878P	P	19980109		
	WO 1999-US475	W	19990109		

OS MARPAT 131:73506

GI



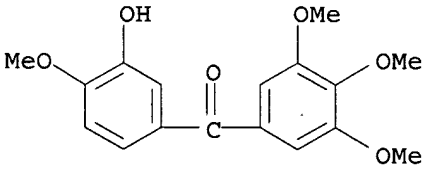
I

AB Phenstatin I (R = H, R1 = OMe, R2 = OH) and related prodrugs I [R = H, OMe, Me, Cl, F; R1 = H, OMe; R2 = OPO3Na2, OPO3H2, OAc, OMe, Me, Cl, F; R1R2 = OCH2O] were prepd. and formulated for use as antineoplastic agents. Thus, phenstatin was converted to the sodium phosphate prodrug I (R = H, R1 = OMe, R2 = OPO3Na2) by a dibenzylphosphite phosphorylation and subsequent hydrogenolysis sequence. Phenstatin was found to be a potent inhibitor of tubulin polymn. and the binding of colchicine to tubulin comparable to combretastatin A-4.

IT **203448-32-2P**, Phenstatin
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(synthesis and formulation of phenstatin and related prodrugs for use as antitumor agents)

RN 203448-32-2 CAPLUS

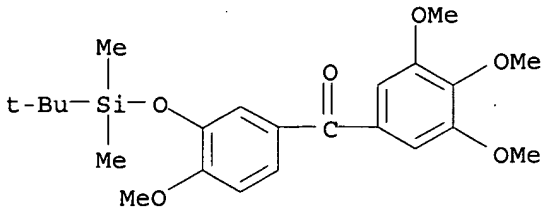
CN Methanone, (3-hydroxy-4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



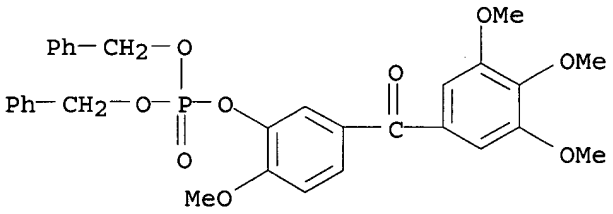
IT **203448-30-0P 203448-33-3P 229027-06-9P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(synthesis and formulation of phenstatin and related prodrugs for use as antitumor agents)

RN 203448-30-0 CAPLUS

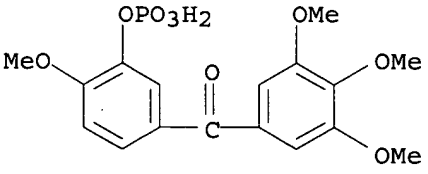
CN Methanone, [3-[[(1,1-dimethylethyl)dimethylsilyl]oxy]-4-methoxyphenyl](3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



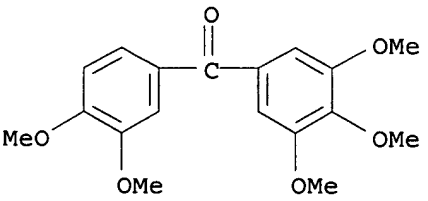
RN 203448-33-3 CAPLUS
CN Phosphoric acid, 2-methoxy-5-(3,4,5-trimethoxybenzoyl)phenyl bis(phenylmethyl) ester (9CI) (CA INDEX NAME)



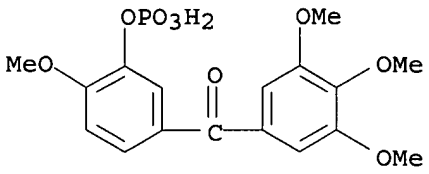
RN 229027-06-9 CAPLUS
CN Methanone, [4-methoxy-3-(phosphonooxy)phenyl](3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



IT **22699-97-4P 203448-34-4P 203448-35-5P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and formulation of phenstatin and related prodrugs for use as antitumor agents)
RN 22699-97-4 CAPLUS
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

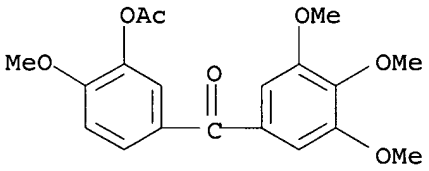


RN 203448-34-4 CAPLUS
CN Methanone, [4-methoxy-3-(phosphonooxy)phenyl](3,4,5-trimethoxyphenyl)-, disodium salt (9CI) (CA INDEX NAME)



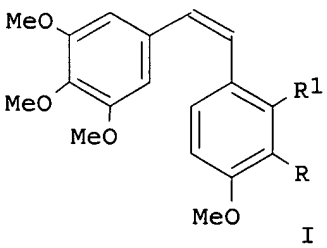
●2 Na

RN 203448-35-5 CAPLUS
CN Methanone, [3-(acetyloxy)-4-methoxyphenyl](3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

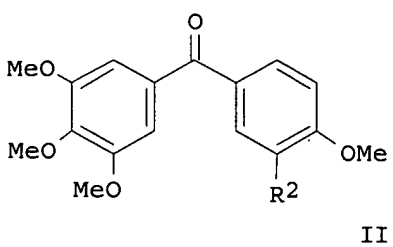


RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 9 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1998:253141 CAPLUS
DN 128:230173
TI Antineoplastic Agents. 379. Synthesis of Phenstatin Phosphate
AU Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; Hamel, Ernest; Pettit, Robin K.
CS Cancer Research Institute and Department of Chemistry, Arizona State University, Tempe, AZ, 85287-1604, USA
SO Journal of Medicinal Chemistry (1998), 41(10), 1688-1695
CODEN: JMCMAR; ISSN: 0022-2623
PB American Chemical Society
DT Journal
LA English
GI



I



II

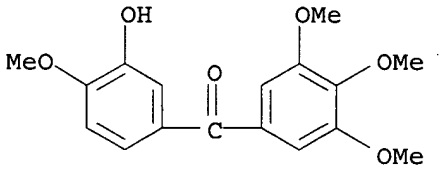
AB A structure-activity relationship (SAR) study of the South African willow tree (Combretum caffrum) antineoplastic constituent combretastatin A-4 (I; R = OH, R1 = H) directed at maintaining the (Z)-stilbene relationship of

the olefin di-Ph substituents led to synthesis of a potent cancer cell growth inhibitor designated phenstatin (II; R2 = OH). Initially phenstatin silyl ether (II; R2 = OSiMe2CMe3) was unexpectedly obtained by Jacobsen oxidn. of combretastatin A-4 silyl ether (I; R = OSiMe2CMe2, R1 = H), and the parent phenstatin (II; R2 = OH) was later synthesized in quantity. Phenstatin was converted to the sodium phosphate prodrug [II; R2 = OP(O)(ONa)2] by a dibenzyl phosphite phosphorylation and subsequent hydrogenolysis sequence. Phenstatin (II; R2 = OH) inhibited growth of the pathogenic bacterium Neisseria gonorrhoeae and was a potent inhibitor of tubulin polymn. and the binding of colchicine to tubulin comparable to combretastatin A-4 (I; R = OH, R1 = H). Interestingly, the prodrugs were found to have reduced activity in these biochem. assays. While no significant tubulin activity was obsd. with the phosphorylated deriv. of combretastatin A-4 (I; R = OH, R1 = H), phosphate II [R2 = OP(O)(ONa)2] retained detectable inhibitory effects in both assays.

IT **203448-32-2P**, Phenstatin
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(structure-activity relationship of the antineoplastic agent combretastatin A-4)

RN 203448-32-2 CAPLUS

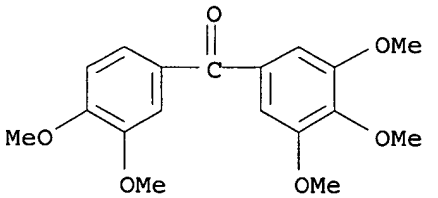
CN Methanone, (3-hydroxy-4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



IT **22699-97-4P 203448-34-4P**, Phenstatin disodium phospahte
203448-35-5P, Phenstatin acetate
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(structure-activity relationship of the antineoplastic agent combretastatin A-4)

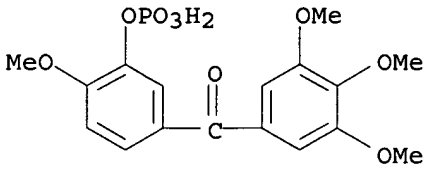
RN 22699-97-4 CAPLUS

CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



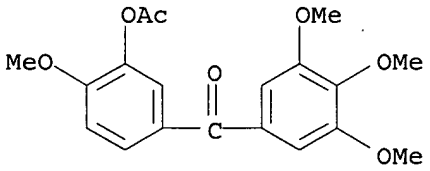
RN 203448-34-4 CAPLUS

CN Methanone, [4-methoxy-3-(phosphonooxy)phenyl](3,4,5-trimethoxyphenyl)-, disodium salt (9CI) (CA INDEX NAME)

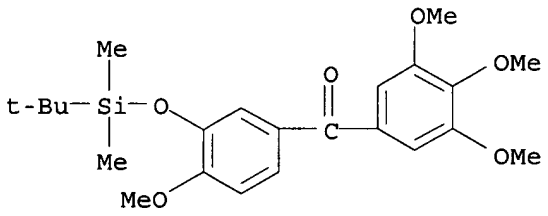


●2 Na

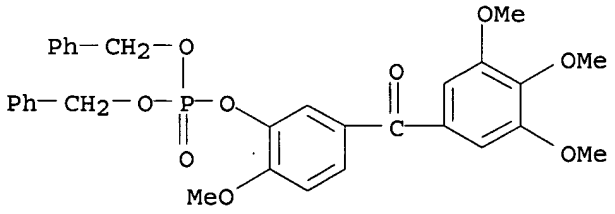
RN 203448-35-5 CAPLUS
CN Methanone, [3-(acetyloxy)-4-methoxyphenyl](3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



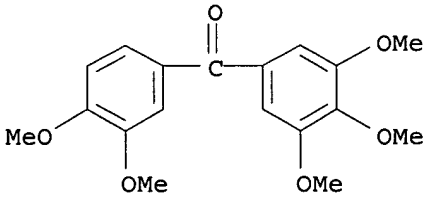
IT **203448-30-0P**, O-[(tert-Butyldimethylsilyl)oxy]phenstatin
203448-33-3P, Phenstatin dibenzyl phospahte
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(structure-activity relationship of the antineoplastic agent combretastatin A-4)
RN 203448-30-0 CAPLUS
CN Methanone, [3-[[(1,1-dimethylethyl)dimethylsilyl]oxy]-4-methoxyphenyl](3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



RN 203448-33-3 CAPLUS
CN Phosphoric acid, 2-methoxy-5-(3,4,5-trimethoxybenzoyl)phenyl bis(phenylmethyl) ester (9CI) (CA INDEX NAME)

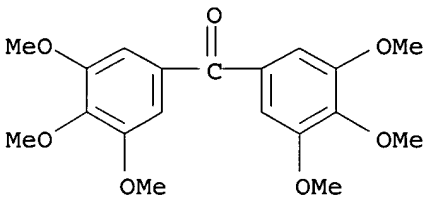


L7 ANSWER 10 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1997:594340 CAPLUS
DN 127:287685
TI Specificity in structure-based drug design: identification of a novel, selective inhibitor of Pneumocystis carinii dihydrofolate reductase
AU Gschwend, Daniel A.; Sirawaraporn, Worachart; Santi, Daniel V.; Kuntz, Irwin D.
CS Department of Pharmaceutical Chemistry and of Biochemistry and Biophysics, University of California, San Francisco, CA, 94143-0446, USA
SO Proteins: Structure, Function, and Genetics (1997), 29(1), 59-67
CODEN: PSFGEY; ISSN: 0887-3585
PB Wiley-Liss
DT Journal
LA English
AB Specificity is an important aspect of structure-based drug design. Distinguishing between related targets in different organisms is often the key to therapeutic success. Pneumocystis carinii is a fungal opportunist which causes a crippling pneumonia in immunocompromised individuals. We report the identification of novel inhibitors of P. carinii dihydrofolate reductase (DHFR) that are selective vs. inhibition of human DHFR using computational mol. docking techniques. The Fine Chems. Directory, a data-base of com. available compds., was screened with the DOCK program suite to produce a list of potential P. carinii DHFR inhibitors. We then used a postdocking refinement directed at discerning subtle structural and chem. features that might reflect species specificity. Of 40 compds. predicted to exhibit anti-Pneumocystis DHFR activity, each of novel chem. framework, 13 (33%) show IC50 values better than 150 .mu.M in an enzyme assay. These inhibitors were further assayed against human DHFR: 10 of the 13 (77%) bind preferentially to the fungal enzyme. The most potent compd. identified is a 7 .mu.M inhibitor of P. carinii DHFR with 25-fold selectivity. The ability of mol. docking methods to locate selective inhibitors reinforces our view of structure-based drug discovery as a valuable strategy, not only for identifying lead compds., but also for addressing receptor specificity.
IT **22699-97-4**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(structure-based drug design of pneumocystis carinii dihydrofolate reductase inhibitors)
RN 22699-97-4 CAPLUS
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 11 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1996:95892 CAPLUS
DN 124:261132
TI On the silylation of diarylcarbinols
AU Gautret, Philippe; El-Ghammarti, Samira; Legrand, Anne; Couturier, Daniel; Rigo, Benoit
CS Lab. Chimie Organique et Environnement, Ecole des Hautes Etudes

Industrielles, Lille, 59046, Fr.
SO Synthetic Communications (1996), 26(4), 707-13
CODEN: SYNCAV; ISSN: 0039-7911
PB Dekker
DT Journal
LA English
OS CASREACT 124:261132
AB Because of their dismutation into benzophenones and diphenylmethanes, it is necessary to use chlorotrimethylsilane and not triflic acid as a catalyst for the silylation of diarylcarbinols, e.g., Ph2CHOH, with hexamethyldisilazane.
IT **40112-20-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of diarylcarbinols and their silylation using chlorotrimethylsilane as catalyst)
RN 40112-20-7 CAPLUS
CN Methanone, bis(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



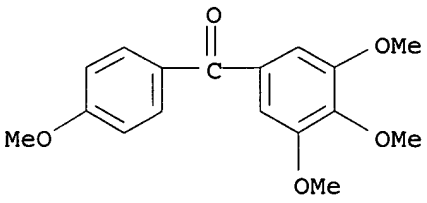
L7 ANSWER 12 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1995:735694 CAPLUS
DN 123:198518
TI Stilbene derivatives as anticancer agents
IN Cushman, Mark S.; Hamel, Ernest
PA Research Corporation Technologies, Inc., USA
SO U.S., 37 pp. Cont.-in-part of U.S. Ser. No. 887,725, abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5430062	A	19950704	US 1993-81755	19930623
	WO 9323357	A1	19931125	WO 1993-US4807	19930520

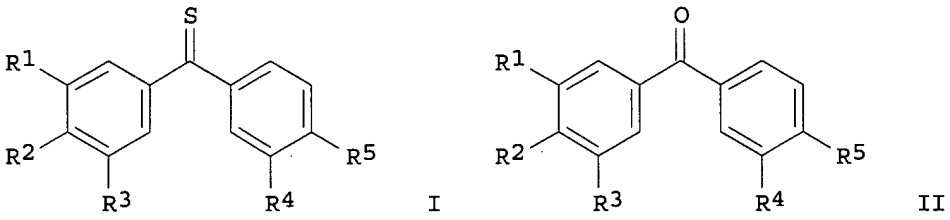
W: AU, CA, JP, KR
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRAI US 1992-887725 19920521
WO 1993-US4807 19930520
OS MARPAT 123:198518
AB Stilbenes, dihydrostilbenes, benzamides, and benzylamines and some related compds. derived from combretastatin A (129 compds.) were prepd. Thus, (Z)-3,4,5-(MeO)3C6H2CH:CHC6H4OMe-4 was obtained by treating 3,4,5-(MeO)C6H2CH2P+Ph3 Br- with 4-MeOC6H4CHO and had IC50 against MCF-7 breast carcinoma of 1.2X10-6 .mu.M.
IT **109091-08-9P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(prepn. of combretastatin A analogs as neoplasm inhibitors)
RN 109091-08-9 CAPLUS
CN Methanone, (4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX

NAME)



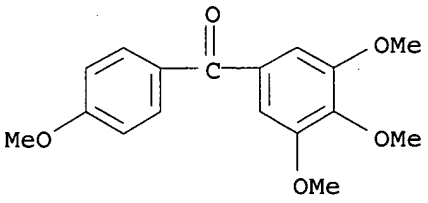
L7 ANSWER 13 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1995:510588 CAPLUS
DN 123:227743
TI A facile and efficient method for deprotection of thioketones
AU Ravindranathan, T.; Chavan, Subhash P.; Awachat, Moreshwar M.; Kelkar, Shreekrishna V.
CS Division Organic Chemistry: Technology, National Chemical Laboratory, PUne, 411 008, India
SO Tetrahedron Letters (1995), 36(13), 2277-80
CODEN: TELEAY; ISSN: 0040-4039
PB Elsevier
DT Journal
LA English
OS CASREACT 123:227743
GI



AB A catalytic, high yielding transformation of thioketones I (R1,R4 = H, R2 = H, Br, Cl, iodo, Me MeO, R3 = H, Cl, MeO, R5 = H, MeO) to ketones II (R1-5 the same) at room temp. is described. I (R1 = R3-5 = H, R2 = MeO) was treated with equimol. p-(O2N)C6H4CHO in CH2Cl2 in presence of TMSOTf as catalyst at room temp. to give II (R1 = R3-5 = H, R2 = MeO) in 100% yield.

IT **109091-08-9P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(a facile and efficient method for deprotection of thioketones)

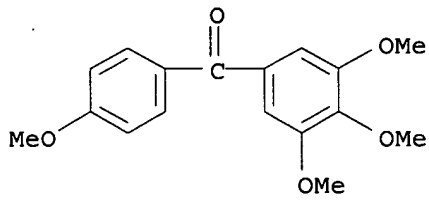
RN 109091-08-9 CAPLUS
CN Methanone, (4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



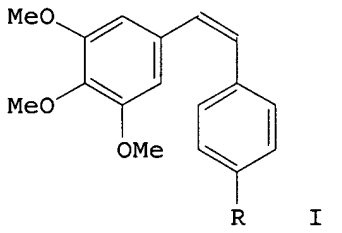
L7 ANSWER 14 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1994:630460 CAPLUS
DN 121:230460
TI Preparation of stilbene derivatives as anticancer agents
IN Cushman, Mark S.; Hamel, Ernest
PA Research Corporation Technologies, Inc., USA
SO PCT Int. Appl., 165 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9323357	A1	19931125	WO 1993-US4807	19930520
	W: AU, CA, JP, KR				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9343852	A1	19931213	AU 1993-43852	19930520
	EP 641301	A1	19950308	EP 1993-914032	19930520
	R: AT, BE, CH, DE, ES, FR, GB, IE, IT, LI				
	US 5430062	A	19950704	US 1993-81755	19930623
PRAI	US 1992-887725		19920521		
	WO 1993-US4807		19930520		

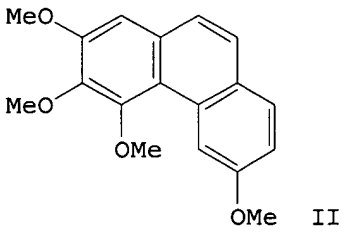
OS MARPAT 121:230460
AB Title compds. R'ArXAr'R'' [Ar, Ar' = (substituted) aryl, -heteroaryl; X = C, NHCH2, CH2NH, NHCO, CONH, Y2Y3CCZ2Z3, cis-, or trans-Y1C:CZ1, CH2, CH(OH), wherein Y1, Y2, Y3, Z1, Z2, Z3 = H, alkyl, alkoxy, HO2C, carbalkoxy, etc.; R', R'' = H, alkyl, halo, (substituted) amino , alkoxy, etc.] and salts thereof are prepd. In cytotoxicity assays against 5 cancer cell cultures: A-549 lung carcinoma, MCF-7 breast carcinoma, HT-29 colon adenocarcinoma, SKMEL-5 and MLM melanomas, 1-(4-methoxyphenyl)-2-(3,4,5-trimethoxyphenyl)ethane (prepn. given) was more cytotoxic (ED50 2 .times. 10-4 .mu.L) than dihydrocombretastin A-4 in all 5 cancer cell lines. A large no. of compds. were prepd. and tested. Pharmaceutical compns. are claimed but not shown.
IT **109091-08-9P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of, as anticancer agent)
RN 109091-08-9 CAPLUS
CN Methanone, (4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



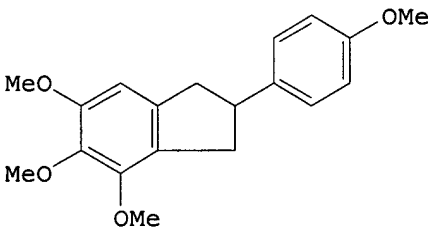
L7 ANSWER 15 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1992:511194 CAPLUS
DN 117:111194
TI Synthesis and evaluation of analogs of (Z)-1-(4-methoxyphenyl)-2-(3,4,5-trimethoxyphenyl)ethene as potential cytotoxic and antimitotic agents
AU Cushman, Mark; Nagarathnam, Dhanapalan; Gopal, D.; He, Hu Ming; Lin, Chii M.; Hamel, Ernest
CS Dep. Med. Chem. Pharmacogn., Purdue Univ., West Lafayette, IN, 47907, USA
SO Journal of Medicinal Chemistry (1992), 35(12), 2293-306
CODEN: JMCMAR; ISSN: 0022-2623
DT Journal
LA English
GI



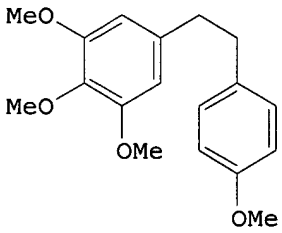
I



II



IV

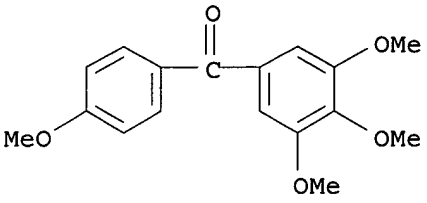


V

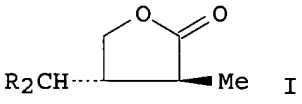
AB A series of stilbenes were prepd. and tested for cytotoxicity in the five human cancer cell lines A-549 non-small cell lung, MCF-7 breast, HT-29 colon, SKMEL-5 melanoma, and MLM melanoma. The cis-stilbenes I [R = alkyl, alkoxy, MeS] proved to be cytotoxic in all five cell lines, with potencies comparable to that of combretastatin A-4. These cytotoxic compds. were all potent inhibitors of tubulin polymn. The corresponding trans-stilbenes were inactive as tubulin polymn. inhibitors and were significantly less cytotoxic in the five cancer cell lines. The corresponding dihydrostilbenes were inactive or less active as tubulin polymn. inhibitors than the corresponding cis compds. The lack of tubulin polymn. inhibitory activity and cytotoxicity displayed by the phenanthrene II which was synthesized as a conformationally rigid analog of compd. I [R = MeO] (III) indicates that the activity of the stilbenes is not due to a totally planar conformation. Similarly, inactivity of the conformationally restricted analog IV suggests that the biol. active conformation of V resembles that of the corresponding cis alkene III. Addnl. inactive compds. prepd. include the benzylisoquinoline series as well as the protoberberines. Shortening the two-carbon bridge of V to a one-carbon bridge in the diphenylmethane resulted in a decrease in cytotoxicity and tubulin polymn. inhibitory activity.

IT **109091-08-9P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);

BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. and neoplasm-inhibiting activity of)
RN 109091-08-9 CAPLUS
CN Methanone, (4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

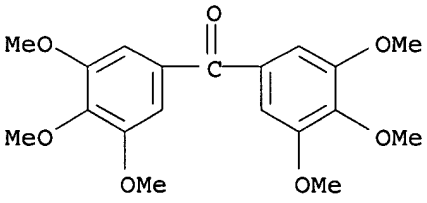


L7 ANSWER 16 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1991:607745 CAPLUS
DN 115:207745
TI Stereoselective synthesis of (+)-peperomin C
AU Zee, Sheng Hsu; Chou, Shan Yen
CS Dep. Chem., Natl. Tsing-Hua Univ., Hsinchu, 30043, Taiwan
SO Journal of the Chinese Chemical Society (Taipei, Taiwan) (1991), 38(4), 371-4
CODEN: JCCTAC; ISSN: 0009-4536
DT Journal
LA English
OS CASREACT 115:207745
GI

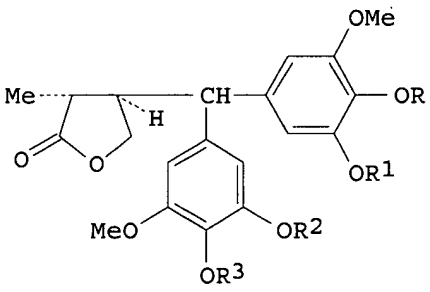


I

AB The stereoselective synthesis peperomin C (I; R = 3,4,5-trimethoxyphenyl) is reported. The key steps include the stereoselective alkylation of the substituted diphenylmethyl group to the .gamma.-butyrolactone ring and transformation of the carbonyl group to the other side in the butyrolactone ring by redn. of the lactone carbonyl followed by degradative oxidn.
IT **40112-20-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with butyrolactone deriv.)
RN 40112-20-7 CAPLUS
CN Methanone, bis(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

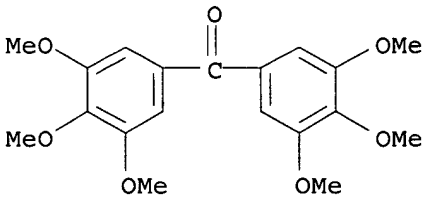


L7 ANSWER 17 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1991:163841 CAPLUS
DN 114:163841
TI Synthesis of (.+-.)-peperomins
AU Zee, Sheng Hsu; Chou, Shan Yen
CS Dep. Chem., Natl. Tsing Hua Univ., 30043, Taiwan
SO Journal of the Chinese Chemical Society (Taipei, Taiwan) (1990), 37(6), 583-9
CODEN: JCCTAC; ISSN: 0009-4536
DT Journal
LA English
GI

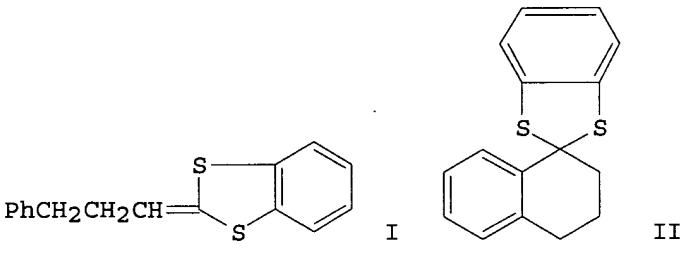


I

AB (.+-.)-Peperomins A, B, and C (I; RR1 = R2R3 = CH2; R = R1 = Me, R2R3 = CH2; R = R1 = R2 = R3 = Me, resp.) were prepd. by Stobbe condensation of benzophenones with di-Et succinate, followed by 3 addnl. steps.
IT **40112-20-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(Stobbe condensation of, with di-Et succinate)
RN 40112-20-7 CAPLUS
CN Methanone, bis(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 18 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1991:6336 CAPLUS
DN 114:6336
TI 1,3-Benzodithiolium cation mediated cyclization reactions
AU Rigby, James H.; Kotnis, Atul; Kramer, James
CS Dep. Chem., Wayne State Univ., Detroit, MI, 48202, USA
SO Journal of Organic Chemistry (1990), 55(17), 5078-88
CODEN: JOCEAH; ISSN: 0022-3263
DT Journal
LA English
OS CASREACT 114:6336
GI



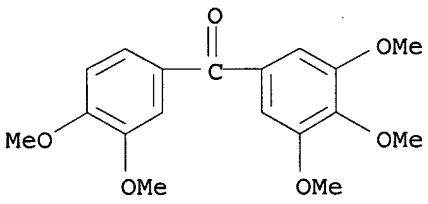
I II

AB General protocols for the construction of various ring systems employing cation olefin cyclizations initiated by the readily accessible 1,3-benzodithiolium ion are described. Several substituted tetralones and tetralins can be rapidly assembled by this methodol. as can a variety of substituted bicyclo[3.2.1]octane and tricyclic ring systems. The products of these transformations are amenable to interconversion into a range of functionalized species. Thus, PhCH2CH2CHO was condensed with 2-(diethoxyphosphinyl)-1,3-benzodithiole to give the adduct I, which was cyclized p-MeC6H4SO3H to give tetralin deriv. II.

IT **22699-97-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and condensation of, with tri-Et phosphonoacetate)

RN 22699-97-4 CAPLUS

CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 19 OF 35 CAPLUS COPYRIGHT 2003 ACS

AN 1990:218894 CAPLUS

DN 112:218894

TI Powdered epoxy resin compositions for anticorrosive coatings

IN Bymark, Richard M.; Kirk, Alan R.; Griggs, Allen L.; Martin, Steven J.

PA Minnesota Mining and Mfg. Co., USA

SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW

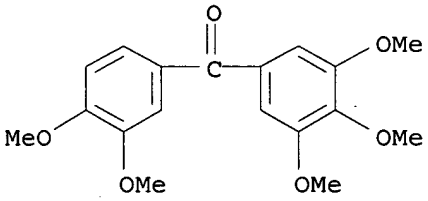
DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 342035	A2	19891115	EP 1989-304781	19890511
	EP 342035	A3	19911009		
	R: DE, FR, GB, IT				
	AU 8934626	A1	19891116	AU 1989-34626	19890509
	AU 615744	B2	19911010		
	NO 8901920	A	19891113	NO 1989-1920	19890511

JP 02018467 A2 19900122 JP 1989-120215 19890512
PRAI US 1988-193498 19880512
AB The compns. contain uncured epoxy resins with epoxy equiv. wt. (EEW) .gtoreq.99 and compds. contg. pyrocatechol (derivs.), 1,8-dihydroxynaphthalene (derivs.), and HOQOH (Q = arom. or heterocyclic moieties having OH on adjacent carbon atoms or on available adjacent positions). Coating a compn. of Shell 2004 (epoxy resin, EEW 875-975) 200, Ca metasilicate 70, TiO2 10, acrylic polymer-coated SiO2 (flow control agent) 2, dicyandiamide 3.75, 2-methylimidazole 1,2,4,6-tris(dimethylaminomethyl)phenol 3, and 3,3',4,4',5-pentahydroxybenzophenone 4 parts on a steel bar and air-drying at room temp. gave a bar showing good adhesion (75.degree., H2O, 2 wk or cathodic debonding test).
IT **22699-97-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and hydrolysis of, for powd. epoxy coatings)
RN 22699-97-4 CAPLUS
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

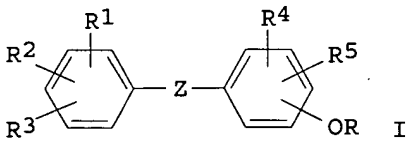


L7 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1982:598512 CAPLUS
DN 97:198512
TI Derivatives of benzoyl- and (.alpha.-hydroxybenzyl)phenyl glycosides and their therapeutic application
IN Picart, Francois
PA Societe de Recherches Industrielles (SORI) S. A., Fr.
SO Eur. Pat. Appl., 45 pp.
CODEN: EPXXDW
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 51023	A1	19820505	EP 1981-401654	19811021
	EP 51023	B1	19840530		
	R: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	FR 2492830	A1	19820430	FR 1980-23133	19801029
	FR 2492830	B1	19831007		
	AT 7701	E	19840615	AT 1981-401654	19811021
	ZA 8107314	A	19821027	ZA 1981-7314	19811022
	US 4432973	A	19840221	US 1981-314032	19811022
	ES 506660	A1	19830101	ES 1981-506660	19811028
	HU 26904	O	19830923	HU 1981-3167	19811028
	HU 191341	B	19870227		
	JP 57102899	A2	19820626	JP 1981-172183	19811029
	JP 02004235	B4	19900126		
	DD 202157	A5	19830831	DD 1981-234458	19811029
	CS 224629	P	19840116	CS 1981-7961	19811029
	CA 1181745	A1	19850129	CA 1981-389050	19811029

09/584,952

PRAI FR 1980-23133 19801029
EP 1981-401654 19811021
OS CASREACT 97:198512
GI



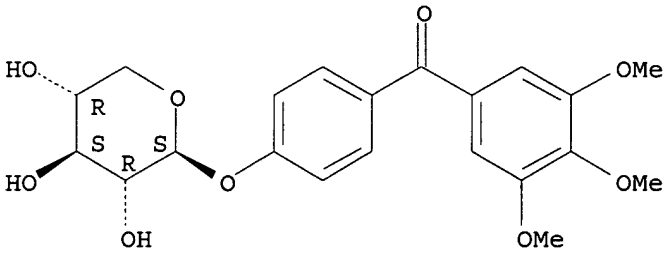
I

AB Glycosides I [R = sugar residue; R1, R2, R3, R4, R5 = H, halo (un)substituted C1-4 alkyl, (un)substituted C1-4 alkoxy, NO2, cyano, thiocyanato, isothiocyanato, (un)substituted NH2; addnl. R1 = NHCSOMe, OCMe2CO2R6 (R6 = C1-4 alkyl); Z = CO, CH(OH)], with antiulcer, antithrombotic, antihypoxia, and blood platelet aggregation inhibiting activities (extensive data given), were prepd. Thus, Na 4-(4-nitrobenzyl)phenolate was refluxed with 2,3,4-tri-O-acetyl-1-bromo-.alpha.-D-xylopyranose in DMF-ClCH2CH2Cl, and the product was deacetylated to give 4-(4-nitrobenzoyl)phenyl .beta.-D-xylopyranoside.

IT **83354-98-7P 83355-36-6P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

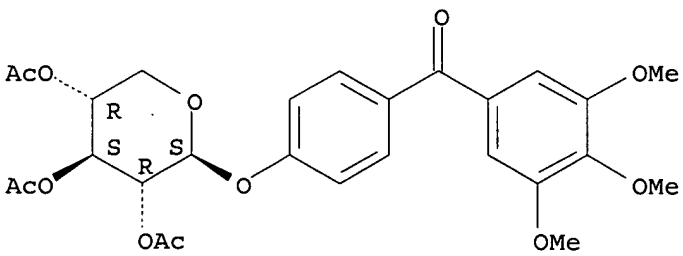
RN 83354-98-7 CAPLUS
CN Methanone, (3,4,5-trimethoxyphenyl)[4-(.beta.-D-xylopyranosyloxy)phenyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 83355-36-6 CAPLUS
CN Methanone, [4-[(2,3,4-tri-O-acetyl-.beta.-D-xylopyranosyl)oxy]phenyl](3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

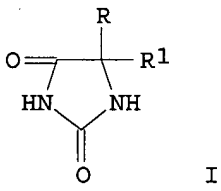


L7 ANSWER 21 OF 35 CAPLUS COPYRIGHT 2003 ACS

AN 1980:514516 CAPLUS
DN 93:114516
TI Hydantoin derivatives
IN Konishi, Jinemon
PA Nippon Zoki Pharmaceutical Co., Ltd., Japan
SO Eur. Pat. Appl., 66 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 6407	A1	19800109	EP 1978-100683	19780816
	EP 6407	B1	19840516		
	R: BE, CH, DE, FR, GB, LU, NL, SE				
	JP 55004305	A2	19800112	JP 1978-71236	19780613
	JP 61021471	B4	19860527		
	SU 847916	A3	19810715	SU 1978-2650052	19780816
	US 4281009	A	19810728	US 1978-939791	19780905
	CA 1122602	A1	19820427	CA 1978-310821	19780907
	AU 7840200	A1	19800403	AU 1978-40200	19780926
	AU 520592	B2	19820211		
PRAI	JP 1978-71236		19780613		

GI

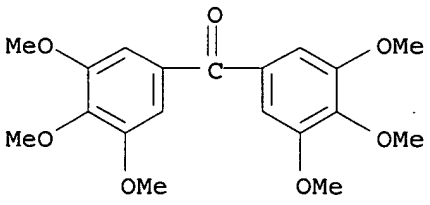


I

AB Hydantoins I (R = substituted Ph, R1 = alkyl, heterocyclic, optionally substituted Ph) were prepd. Thus, 2-(4-hydroxybenzoyl)thiophene was treated with KCN and (NH4)2CO3 to give 74.1% I (R = 4-HOC6H4, R1 = 2-thienyl). I have tranquilizing, sedative, antihypertensive, analgesic, antiulcer, and anti-Parkinsonism activity.

IT **40112-20-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(cyclocondensation of, with cyanide and ammonium carbonate)

RN 40112-20-7 CAPLUS
CN Methanone, bis(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 22 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1976:592382 CAPLUS
DN 85:192382
TI 2-(4-Benzoylphenoxy)-2-methyl propionic acid derivatives

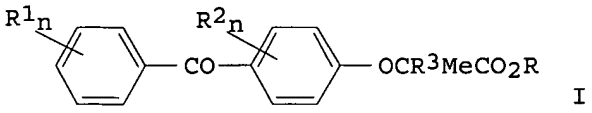
09/584,952

IN Mieville, Andre
PA Laboratorien Fournier G.m.b.H., Fed. Rep. Ger.
SO Ger. Offen., 76 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2605382	A1	19760826	DE 1976-2605382	19760211
	DE 2605382	C2	19851031		
	GB 1539897	A	19790207	GB 1975-5979	19750212
	JP 51095049	A2	19760820	JP 1976-3961	19760116
	CH 617657	A	19800613	CH 1976-1283	19760202
	DK 7600496	A	19760813	DK 1976-496	19760206
	SE 7601370	A	19760813	SE 1976-1370	19760209
	SE 430329	B	19831107		
	SE 430329	C	19840216		
	HU 21661	O	19820128	HU 1976-OI200	19760209
	HU 179266	B	19820928		
	BE 838435	A1	19760811	BE 1976-2054818	19760211
	NO 7600440	A	19760813	NO 1976-440	19760211
	FI 7600328	A	19760813	FI 1976-328	19760211
	ES 445075	A1	19770801	ES 1976-445075	19760211
	CA 1069523	A1	19800108	CA 1976-245489	19760211
	CS 212252	P	19820326	CS 1976-900	19760211
	NL 7601461	A	19760816	NL 1976-1461	19760212
	FR 2300552	A1	19760910	FR 1976-3876	19760212
	FR 2300552	B1	19810612		
	JP 51131843	A2	19761116	JP 1976-14389	19760212
	DD 124115	C	19770202	DD 1976-191218	19760212
	AU 7611053	A1	19770818	AU 1976-11053	19760212
	AU 512971	B2	19801106		
	DD 143909	C	19800917	DD 1976-196964	19760212
	FR 2342723	A1	19770930	FR 1976-37022	19761208
	FR 2342723	B1	19810529		
	NO 7701367	A	19760813	NO 1977-1367	19770420
	US 4179515	A	19791218	US 1977-846323	19771028
	US 4235896	A	19801125	US 1977-846324	19771028
	CH 620415	A	19801128	CH 1978-8349	19780804
	CA 1072110	A2	19800219	CA 1978-310733	19780906
	SE 8005647	A	19800811	SE 1980-5647	19800811
	SE 447651	B	19861201		
	SE 447651	C	19870312		
	FI 8200277	A	19820128	FI 1982-277	19820128
	FI 8500154	A	19850114	FI 1985-154	19850114
	FI 71301	B	19860909		
	FI 71301	C	19861219		

PRAI	GB 1975-5979	19750212
	GB 1975-50630	19751210
	CH 1976-1283	19760202
	US 1976-656711	19760209
	CA 1976-245489	19760211
	FI 1976-328	19760211
	NO 1976-440	19760211
	US 1977-656711	19770209
	FI 1982-277	19820128

GI



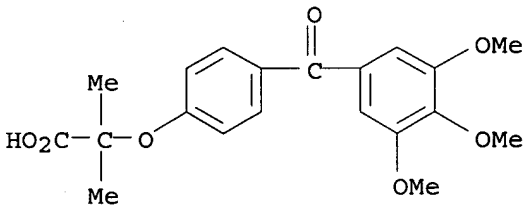
I

AB The title compds. [I; R = e.g., H, Me, Et, Me2CH, Me2NCO(CH2)3; R1n = e.g., H, 4-Cl, 2,6-Cl2, 4-MeO, 2-Me, 4-NH2, 3,4,5-(MeO)3; R2n = e.g., H, 2,6-Me2, 3,5-Me2, 3-Me; R3 = H, Me], useful as anticholesteremics, antilipemics and cholagogs (no data), are prepd. by various procedures. Thus, reaction of 4-(4-ClC6H4CO)C6H4OCMe2COCl with HO(CH2)3CONMe2 in pyridine 1 hr at 50.degree. gives 22% I [R = Me2NCO(CH2)3, R1n = 4-Cl, R2n = H, R3 = Me].

IT **61002-37-7P 61002-38-8P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

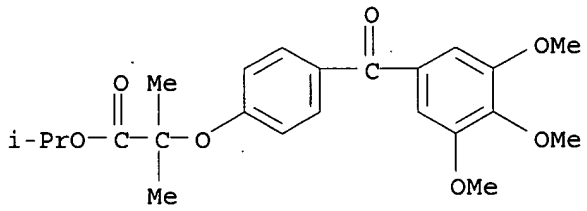
RN 61002-37-7 CAPLUS

CN Propanoic acid, 2-methyl-2-[4-(3,4,5-trimethoxybenzoyl)phenoxy]- (9CI) (CA INDEX NAME)



RN 61002-38-8 CAPLUS

CN Propanoic acid, 2-methyl-2-[4-(3,4,5-trimethoxybenzoyl)phenoxy]-, 1-methylethyl ester (9CI) (CA INDEX NAME)



L7 ANSWER 23 OF 35 CAPLUS COPYRIGHT 2003 ACS

AN 1975:111301 CAPLUS

DN 82:111301

TI ESR studies of the oxidative coupling of some bisphenols

AU Colegate, Steven M.; Hewgill, F. Richmond; Howie, Graeme B.

CS Dep. Org. Chem., Univ. West. Australia, Perth, Australia

SO Australian Journal of Chemistry (1975), 28(2), 343-53
CODEN: AJCHAS; ISSN: 0004-9425

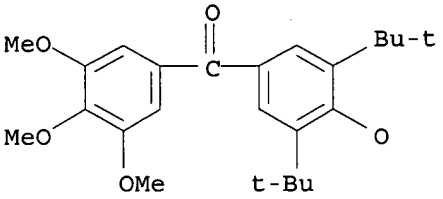
DT Journal

LA English

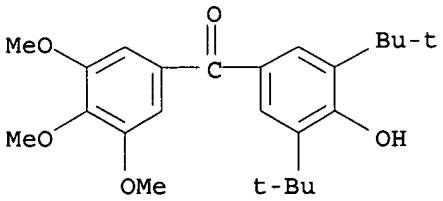
AB ESR spectroscopy and the identification of products show that oxidn. of 3,5,3',5'-tetra-tert-butyl-4,4'-dihydroxybenzophenone in neutral soln. gives 3,5,3',5'-tetra-tert-butyldipheno-4,4'-quinone. If O is present 2,6-di-tert-butyl-p-benzoquinone is also formed. The evolution of CO suggests that bis-spirodienones are intermediate in the formation of these products. ESR spectra of radicals produced by oxidn. of

3,5,3',5'-tetra-tert-butylbiphenyl-4,4'-diol and 2,6-di-tert-butylhydroquinone were re-examd. In alkaline soln. 3,5,3',5'-tetra-tert-butyl-4,4'-dihydroxybenzophenone is oxidized to a radical anion in which the unpaired electron is delocalized over both rings. Attempts to detect unsymmetrical bisaryloxy radicals were unsuccessful, 3',5'-di-tert-butyl-4,4'-dihydroxy-3,5-dimethoxybenzophenone forming only the radical derived from the syringoyl portion, and 2,4'-oxydiphenol ether forming only the 4'-oxy radical. Comparison with the observation of both radicals when a mixt. of guaiacol and p-methoxyphenol was oxidized suggests that C-O-C coupling in 2,4'-oxydiphenol proceeds by direct radical pairing.

IT **54808-46-7**
RL: PRP (Properties)
(ESR of)
RN 54808-46-7 CAPLUS
CN Phenoxy, 2,6-bis(1,1-dimethylethyl)-4-(3,4,5-trimethoxybenzoyl)- (9CI) (CA INDEX NAME)

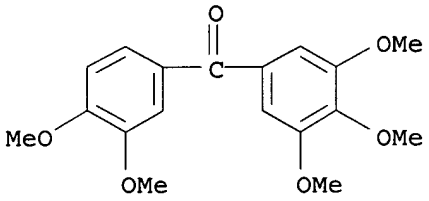


IT **54808-42-3P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and oxidn. of)
RN 54808-42-3 CAPLUS
CN Methanone, [3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl](3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

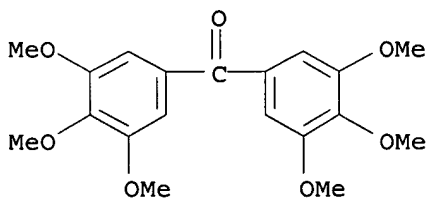


L7 ANSWER 24 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1974:412654 CAPLUS
DN 81:12654
TI Mass spectra of substituted 2-methylbenzophenones
AU Grimshaw, James; Sell, Charles S.; Haslett, Reginald J.
CS Dep. Chem., Queen's Univ., Belfast, UK
SO Organic Mass Spectrometry (1974), 8, 381-6
CODEN: ORMSBG; ISSN: 0030-493X
DT Journal
LA English
AB The mass spectra of MeO and Me derivs. of 2-MeC6H4COPh were detd. Substituent loss from 3'- and 4' -positions as well as from the 2' -positions were important fragmentation processes. Thus the fragmentations were of little use in locating substituents. D labeling showed that the [M-1]+ ion from 3',4,4',5,5' -pentamethoxy-2-methylbenzophenone arose largely by H loss from 2'-and 6'-positions.

IT **22699-97-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 22699-97-4 CAPLUS
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

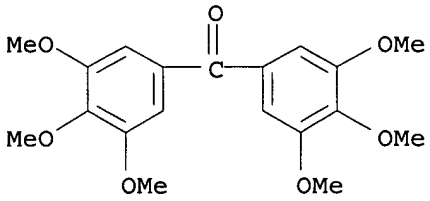


L7 ANSWER 25 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1973:546114 CAPLUS
DN 79:146114
TI Novel reactions with polyphosphoric acid II. Decarboxylative acetylation, trans-carbonylation, and other reactions of substituted aromatic carboxylic acids
AU Hosangadi, B. D.; Kasbekar, A. B.; Nabar, M. J.; Desai, R. C.
CS Dep. Chem., Univ. Bombay, Bombay, India
SO Indian Journal of Chemistry (1973), 11(8), 711-13
CODEN: IJOCAP; ISSN: 0019-5103
DT Journal
LA English
AB 2,2',4,6'-Tetramethoxybenzophenone is transcarbonylated to 2,2',4,4'-tetramethoxybenzophenone with polyphosphoric acid (I). Reaction of 2,3-dimethoxybenzoic acid with I yields 2,3,3',4'-tetramethoxybenzophenone, which has also been transcarbonylated to 3,3',4,4'-isomer with I. Me 3,4,5-trimethoxybenzoate (II), and 2,3,3',4,4',5'-hexamethoxy- and 3,3',4,4',5,5'-hexamethoxybenzophenones are the products of reaction of 3,4,5-trimethoxybenzoic acid in I. The formation of II is a novel feature, which may be due to an esterifying agent generated by the cleavage of a methoxy group. 4,4'-Dimethylbenzophenone is obtained when 2-methyl- and 4-methylbenzoic acids are treated with I. 2,4-Dimethoxy-5-methylbenzoic acid in I yields 5,5'-dimethyl-2,2',4,4'-tetramethoxybenzophenone.
IT **40112-20-7P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 40112-20-7 CAPLUS
CN Methanone, bis(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

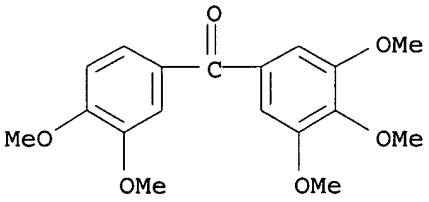


L7 ANSWER 26 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1973:84088 CAPLUS
DN 78:84088

TI Lignans. VIII. Synthesis of 3-carboxy-4-(3',4',5'-trimethoxyphenyl)-5,6,7-trimethoxy-1-tetralone, an intermediate in the synthesis of dimethyl ethers of thomasic acid and lyoniresinol
AU Lakshminarayanan, K. R.; Kulkarni, A. B.
CS Dep. Chem., Univ. Bombay, Bombay, India
SO Indian Journal of Chemistry (1972), 10(7), 767-8
CODEN: IJOCAP; ISSN: 0019-5103
DT Journal
LA English
GI For diagram(s), see printed CA Issue.
AB The title tetralone (I) was prepd. via the benzophenone (II), obtained by the polyphosphoric acid condensation of tri-O-methylgallic acid with tri-O-methylpyrogallol. II on Stobbe condensation with di-Et succinate gave acids (III), which were reduced with Na-Hg to the benzhydrylsuccinic acids (IV), which on cyclization gave I.
IT **40112-20-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation with diethyl succinate)
RN 40112-20-7 CAPLUS
CN Methanone, bis(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

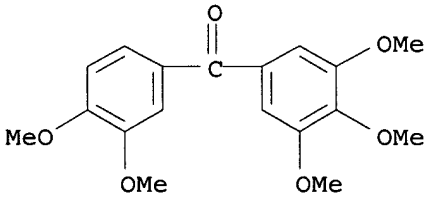


L7 ANSWER 27 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1969:461046 CAPLUS
DN 71:61046
TI Polycyclic compounds. I. Novel method for the synthesis of substituted fluorenones
AU Pol, V. A.; Wagh, S. M.; Barve, V. P.; Kulkarni, A. B.
CS Univ. Bombay, Bombay, India
SO Indian Journal of Chemistry (1969), 7(6), 557-60
CODEN: IJOCAP; ISSN: 0019-5103
DT Journal
LA English
AB Substituted fluorenones were prepd. from o-bromo-substituted benzophenones using NaH or NaOEt for cyclization. 2'-Bromo-4,5-dimethoxy-benzophenone on cyclization affords 2,3-dimethoxy- and 3,4-dimethoxyfluorenone. Similarly, 6'-bromo-3,3',4,4',5'-penta-methoxybenzophenone on cyclization affords 2,3,4,6,7-pentamethoxy- and 2,3,4,5,6-pentamethoxyfluorenone. The structures of the isomeric pentamethoxyfluorenones were detd. by N.M.R. spectroscopy.
IT **27133-79-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 27133-79-5 CAPLUS
CN Benzophenone, bromo-3,3',4,4',5-pentamethoxy- (8CI) (CA INDEX NAME)



D1—Br

L7 ANSWER 28 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1969:81543 CAPLUS
DN 70:81543
TI Spectroscopic studies of some aryl ketone-tetracyanoethylene complexes
AU Foster, J.; Goldstein, Michael
CS Northern Polytech., London, UK
SO Spectrochimica Acta, Part A: Molecular and Biomolecular Spectroscopy (1969), 25(1), 141-50
CODEN: SAMCAS; ISSN: 1386-1425
DT Journal
LA English
AB Equil. consts. of formation were detd. for some aryl ketone-tetracyanoethylene complexes by measurements on their charge-transfer absorption bands in CCl4 and (or) CH2Cl2 solns. at 33.degree. and other temps. Evidence is presented which indicates that the stoichiometry of the complexes formed is 1:1 and that the .pi.-aromatic electron clouds rather than the carbonyl O atoms of the ketones, function as the donor sites. Some enthalpies of formation were evaluated, and some .pi.-electron ionization energies estd. The results of Hueckel mol. orbital calcns. are presented.
IT **22699-97-4**
RL: PRP (Properties)
(mol. orbitals of, charge-transfer complex formation with tetracyanoethylene in relation to)
RN 22699-97-4 CAPLUS
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

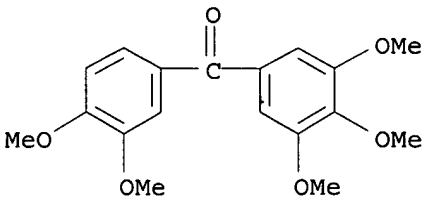


IT **22699-76-9P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 22699-76-9 CAPLUS
CN Ethenetetracarbonitrile, compd. with 3,3',4,4',5-pentamethoxybenzophenone (1:1) (8CI) (CA INDEX NAME)

CM 1

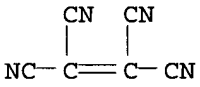
CRN 22699-97-4

CMF C18 H20 O6



CM 2

CRN 670-54-2
CMF C6 N4



L7 ANSWER 29 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1967:402990 CAPLUS
DN 67:2990
TI Potential psychotropic drugs. III. Synthesis of new esters of N-methyl-3-piperidinol and 3-quinuclidinol and of new ethers of N-methyl-3-piperidinol
AU Grenier, Georges; Pacheco, Henri
CS Inst. Natl. Sci. Appl., Rhone, Fr.
SO Chimica Therapeutica (1966), (7), 408-14
CODEN: CHTPBA; ISSN: 0009-4374
DT Journal
LA French
GI For diagram(s), see printed CA Issue.
AB cf. CA 64: 6547e. A series of N-methyl-3-piperidinol and 3-quinclidinol esters (I) and N-methyl-3-piperidinol ethers (II) were prepd. by methods A-F to test their psychotomimetic properties. Method A: the appropriate acid chloride was stirred with a suitable amino alc. (III) in C6H6 or Et2O 6 hrs. at 20.degree.. Method B: 1 mole of the appropriate Me or Et ester was alcoholyzed with 2 moles III in the presence of catalytic amts. of NaOMe with azeotropic distn. in C6H14 (Bh), C6H6 (Bb), PhMe (Bt), or xylene (Bx), or without solvent below the b.p. of III. In this method the arylglyoxylates (IV), ArCOCO2R, are prepd. by Friedel-Crafts condensation of the appropriate ArH with ClCOCO2Et in PhNO2 to give 75% p-MeOC6H4COCO2Et, b15 176.degree., 77% 2,4-(MeO)2C6H3COCO2Et, b0.05 145-50.degree., and 69% 3,4-(MeO)2C6H3COCO2Et, b0.1 145-50.degree., m. 36.degree.. IV are also prepd. by SeO2 oxidn. of the appropriate .omega.-bromoacetophenone to give, e.g., 2,5-(MeO)2C6H3COCO2Et, b0.1 133.degree., m. 32.degree., and 98% 3,4,5-Cl3C6H2COCO2Et, m. 74.degree.. 3,4,5-(MeO)3C6H2COCO2Et, m. 52.degree., reduced in EtOH with NaBH4 gives 70% 3,4,5-(MeO)3C6H2CH(OH)CO2Et, m. 54.degree.. Method C: 3-(2-furyl)-2-(1-naphthyl)propionic acid was treated with III in the presence of p-MeC6H4SO2Cl. Method D: R'CO2H was treated with the quaternary ammonium salt of a tertiary base with excess MeI in a sealed tube 4 hrs. at 100.degree.. Method E: PhCHClCO2Et was refluxed with piperidine in C6H6 and the Et .alpha.-phenyl-.alpha.-piperidinylacetate treated with III. Method F: Ph2CClCO2Et was treated with the benzilate of N-methyl-3-piperidinol in the presence of SOCl2. With these methods the

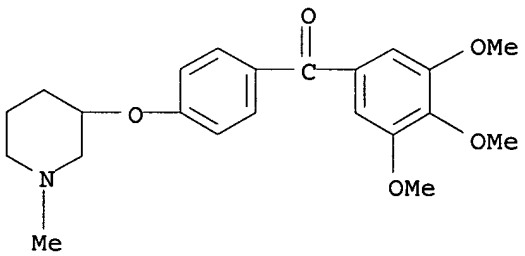
following R'CO2R [R = 3-(N-methylpiperidinyl), unless otherwise stated] are prepd. [R', method, % yield, HCl salt m.p. given]: p-MeOC6H4, A, 40, 214.degree. (AcEt-EtOH); 2,4-(MeO)2C6H3, A, -, [picrate 190.degree. (H2O)]; 3,5-(MeO)2C6H3, A, 65, 171.degree. (AcEt-EtOH); 3,4-CH2O2C6H3, A, 76, 252.degree. (AcEt); 3,4,5-(MeO)3C6H2, A, 55, 182.degree. (AcEt); 3,4,5-(MeO)3C6H2, R = 3-(N,N-dimethylpiperidinylium iodide), D, 96, 200.degree. (EtOH); 3,4,5-(MeO)C6H2, R = 3-(1,4-ethanopiperidinyl), A, 55, 236.degree. (AcEt); 4,3,5-MeOI2C6H2, A, 69, 200.degree. (EtOH-H2O); 2,3,5-HOCl2C6H2, Bt, 40, 250.degree. (EtOH) [free base, 115.degree. (Et2O)]; 4,3,5-MeOCl2C6H2, A, 45, 294.degree. (AcEt-EtOH); 3,4,5-Cl3C6H2, A, 76, 161.degree. (AcEt); 1-C10H7, A, 55, 128.degree. (AcEt); Q, A, 58, 242.degree. (AcEt); p-MeOC6H4CO, Bh, 30, 142.degree. (EtOH); 2,4-(MeO)2C6H3CO, Bx, 5, 208.degree. (Me2CO); 3,4-(MeO)2C6H3CO, Bt, 20, 183.degree. (EtOH); 2,5-(MeO)2C6H3CO, Bo, 28, 198.degree. (AcEt-EtOH); 3,5-Cl2C6H3CO, Bh, 25, 174.degree. (EtOH); 1-C10H7CO, Bh, 5, 228.degree. (AcEt); Z, A, 16, 210.degree. (EtOH-C6H6); 3,4,5-(MeO)3C6H2CH2, Bx, 93, free base 146.degree. (iso-Pr2O), 168.degree. (AcEt); 1-C10H7CH2, Bh, 20, - [fumarate 100.degree. (EtOH)]; p-ClC6H4OCH2, A, 85, 218.degree. (EtOH); 2,4-Cl2C6H3OCH2, A, 59, 146.degree. (AcEt); 1-C10H7OCH2, Bh, 46, - [fumarate, 100.degree. (EtOH)]; p-MeOC6H4CH:CH, B, 98, 168.degree. (AcEt-EtOH); 3,4,5-(MeO)3C6H2CH:CH, A, 55, - [hydroscopic, (AcOEt)]; 2-(2-furyl)-1-(1-naphthyl)ethyl, C, 36, - [hygroscopic (Et2O)]; phenyl-N-piperidinylmethyl, E, 80, 2HCl.2H2O salt, 278.degree. (EtOH) (free base b. 153.degree.); PhCH(OH), Bh, 33, 170.degree. (EtOH); 3,4,5-(MeO)3C6H2CH(OH), Bh, 55, 160.degree. (EtOH); PhCHCl, A, 75, 150.degree. (AcEt); Ph2CH(OH), Bh, - [camphorsulfonate, 210.degree. (EtOH)]; Ph2CHCl, F, 81, 136.degree. (EtOH-iso-Pr2O). By refluxing 1 mole N-methyl-2-chloropiperidine-HCl 4 hrs. with 1 mole p-R'COC6H4OH and 2 moles K2CO3 in Me2CHOH, the following p-R'COC6H4OR.HCl with R = N-methylpiperidin-2-yl are prepd. (R', % yield, and m.p. of HCl salt given): Et, 40, 156.degree. (Me2CO); Ph, 24, 216.degree. (EtOH); 3,4,5-(MeO)3C6H2, 10, 183.degree. (AcEt); PhCH2, 15, 201.degree. (Me2CO); Ph2CH, 32, 142.degree. (EtOH). 3,4,5-(MeO)3C6H2COC6H4OH-p, m. 120.degree., is prepd. by slow addn. of 46.4 g. 3,4,5-(MeO)3C6H2COCl to 25 g. PhOH in 200 ml. PhNO2, followed by addn. of 40 g. AlCl3 in small portions at <10.degree.. In the same way p-HOC6H4COCHPh2, m. 180-2.degree., is prepd. in 60% yield. 50 references.

IT **14666-23-0P 14938-63-7P**

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

RN 14666-23-0 CAPLUS

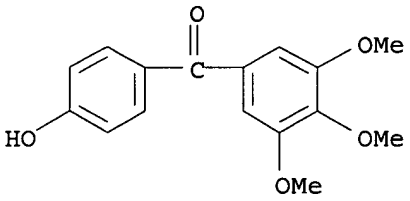
CN Benzophenone, 3,4,5-trimethoxy-4'-[(1-methyl-3-piperidyl)oxy]-, hydrochloride (8CI) (CA INDEX NAME)



HCl

RN 14938-63-7 CAPLUS

CN Benzophenone, 4'-hydroxy-3,4,5-trimethoxy- (8CI) (CA INDEX NAME)



L7 ANSWER 30 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1963:461993 CAPLUS
DN 59:61993
OREF 59:11368a-h,11369a-h,11370a-h,11371a-h,11372a-h,11373a-h,11374a-h,11375a-b
TI Natural products inhibiting mitoses. XI. Structure of sikkimotoxin. 1. Synthesis of stereoisomeric 6,7-dimethoxy analogs of podophyllotoxin
AU Schreier, E.
CS Sandoz Ltd., Basel, Switz.
SO Helv. Chim. Acta (1963), 46, 75-117
DT Journal
LA German
GI For diagram(s), see printed CA Issue.
AB cf. CA 53, 21827a; 55, 23786b. (Throughout this abstr. Z = 3,4,5(MeO)3C6H2; in the formulas, the black points indicate that the H atoms on the C-atoms indicated are situated in front of the plane of the paper.) The total synthesis of several stereoisomeric 6,7-(MeO)2 analogs of podophyllotoxin (I), the main components of the resin of Podophyllum emodi and P. peltatum, was described. One of the synthetic lactones, for which the name picrosikkimotoxin (II) was proposed, corresponded in its configuration to picropodophyllin (III), the compd. produced from I by base-catalyzed epimerization. The structure corresponding to synthetic II has been assigned by Chatterjee, et al., to what they called isosikkimotoxin (IV), the product of the base-catalyzed epimerization of sikkimotoxin (V), a new lignan lactone isolated from the rhizomes of P. sikkimensis (Chatterjee and Datta, CA 45, 7567a) and thought to be analogous to I. The properties of the synthetic optically active II, whose structure and abs. configuration were established unequivocally by stereochem. correlation with III, and its Ac deriv. did not agree in all respects with IV and its Ac deriv. This fact gave rise to some doubt as to the correctness of the proposed structure or the purity of the compds. from natural source. A direct comparison of the synthetic and natural compds. was not possible because of the unavailability of authentic material. Gallic acid hydrate (250 g.) dissolved in 2.5 l. H2O contg. 400 g. NaOH with stirring and ice cooling in a N atom, the soln. treated dropwise with 670 ml. Me2SO4 in such a manner that the temp. did not exceed 5.degree., stirred overnight at room temp., boiled 2 hrs., treated with 100 g. NaOH in 150 ml. H2O, boiled 2 hrs., treated with 10 g. C, filtered hot, the filtrate acidified to Congo red (Congo) with 500 ml. 18% HCl, and cooled gave 240-50 g. crude ZCO2H (VI); distn. of crude VI gave 240 g. VI (av. of 10 expts.), b12 215-20.degree., m. 166-8.degree.. VI (240 g.) heated to boiling with 250 ml. SOCl2, when all solid dissolved the soln. refluxed 1 hr., and fractionated gave 230 g. ZCOCl (VII) (av. of 4 expts.), b12 168-70.degree., m. 75-6.degree.. To an ice-cold soln. of 138 g. veratrole in 1 l. (Cl2CH)2 (VIII) was added 120 ml. SnCl4 followed dropwise by 230 g. VII in 400 ml. VIII, the mixt. stirred 6 hrs. at room temp., decompd. with 250 ml. 18% HCl, steam distd., the residue from the steam distn. extd. with C6H6, the ext. washed with dil. aq. NaOH, dried, evapd. in vacuo, and the residue crystd. from Me2CO-MeOH to give 290 g. 3,4-(MeO)2C6H3COZ (IX) (av. of 4 expts.), m. 122-3.degree., .lambda. (EtOH) 312 m.mu. (log .epsilon. 4.15), .nu. (Nujol) 1638 cm.-1 and

.nu.(CH2Cl2) 1650 cm.- Similar condensation of 1 mole veratrole and 1 mole VII with 1 mole AlCl3 gave 258 g. IX. K (60 g.) dissolved in 650 ml. tert-BuOH by refluxing (oil bath 120.degree.; duration 3 hrs.) and stirring in a N atm., the soln. treated with 332 g. IX and 260 g. (EtO2CCH2)2 in 800 ml. tert-BuOH, refluxed and stirred 2 hrs., neutralized with 500 ml. 2N HCl with stirring and ice cooling, the tert-BuOH removed in vacuo, the resulting aq. phase made acid to Congo with 18% HCl, extd. with 4 500-ml. portions Et2O, the combined Et2O solns. extd. with 4 500-ml. portions 2N NaOH, the combined exts. refluxed overnight, cooled, mixed with 3 l. CHCl3 and 1 kg. ice, made acid to Congo by dropwise addn. of 500 ml. concd. HCl, the org. phase sepd., washed twice with 600 ml. H2O, dried, evapd. in vacuo, and the residue crystd. from EtOAc gave 330 g. mixt. (X) of XI and XII, m. 176-80.degree.; from the mother liquor was isolated 32 g. X, m. 177-80.degree., and 13 g., m. 174-6.degree.. X (from a 1 mole run) by tedious fractional crystn. from Me2CO-MeOH was sepd. into its components; XII crystd. from MeOH-Me2CO gave 92 g. XII, m. 193-4.degree., .lambda. (MeOH) 286 m.mu. (log .epsilon. 4.10), .nu. (Nujol) 1712 and 1684 cm.-1 and .nu. (KBr) 1710 and 1680 cm.-1; the product from the mother liquors crystd. from MeOH and then recrystd. from EtOAc, EtOH, and Me2CO gave 20 g. XI, m. 196-8.degree., mixed m.p. with XII depressed, .nu. (Nujol) 1712 and 1682 cm.-1, its a ultraviolet spectrum (UV) being the same as that of XII; crystn. of the product from the combined mother liquors from EtOAc gave 250 g. X, m. 176-8.degree.. X (150 g.) in 1.5 l. EtOH hydrogenated over 7.5 g. 10% Pd-C at room temp. and atm. pressure, after absorption of 8.7 l. H the mixt. filtered, and the filtrate evapd. in vacuo gave a mixt. (XIII) of XIV and XV, colorless glass, .lambda. (MeOH) 278.5 m.mu. (log .epsilon. 3.62); XIII dissolved in a little MeOH and the soln. dild. with 1 l. Et2O gave 90 g. cryst. XIII, m. 165-7.degree., and 47 g. cryst. XIII, m. 155-8.degree.. By tedious fractional crystn. was isolated XIV, m. 179-80.degree. (Me2CO-Et2O), .lambda. (MeOH) 278 m.mu. (log .epsilon. 3.63), .nu. (Nujol) 1728 and 1702 cm.-1 and .nu. (CH2Cl2) 1715 cm.-1, and XV, m. 168-9.degree. (MeOH Et2O), .lambda. (MeOH) 278 m.mu. (log .epsilon. 3.63), .nu. (Nujol) 1732 and 1698 cm.-1 and .nu. (CH2Cl2) 1715 cm.-1 Hydrogenation of 10 g. XI in 120 ml. EtOH with 10% Pd-C at room temp. and atm. pressure gave (after absorption of 550 ml. H) 9.5 g. XIV, m. 179-81.degree. (Et2O). Similar hydrogenation of 90 g. XII in 1 l. EtOH over 5 g. 10% Pd-C gave (after absorption of 5.1 l. H) 86 g. XV, m. 168-9.degree. (Et2O, then MeOH-Et2O). XIII (100 g.) and 200 ml. AcCl boiled and stirred 2 hrs., evapd. in vacuo, the residue dissolved in C6H6, the soln. washed with cold aq. NaHCO3 and ice H2O, dried, and evapd. gave a mixt. (XVI) of the anhydrides of XIV and XV; anal. XVI had .nu. (CH2Cl2) 1860 and 1780 cm.-1, b0.005 220-30.degree.. SnCl4 (60 ml.) in 100 ml. PhNO2 added dropwise to 0.23 mole XVI in 300 ml. PhNO2 with stirring and ice cooling, the mixt. stirred overnight (while allowing the ice in the ice bath to melt) treated with 400 ml. dil. HCl, extd. with 500 ml. Et2O, the org. phase washed once with dil. HCl and twice with H2O, extd. exhaustively with dil. aq. NaOH, the combined alk. exts. made acid to Congo, extd. with CHCl3, the ext. washed, dried, evapd., and the residue crystd. from MeOH gave first (the less-sol.) 40 g. XVII, m. 242-3.degree. (EtOH), .lambda. (MeOH) 210, 235, 277,315 m.mu. (log .epsilon. 4.66, 4.47, 4.08, 3.88), .nu. (Nujol) 1732 cm.-1 [semicarbazone m. 256-8.degree. (decompn.) (EtOH)]; the mother liquor of XVII evapd. in vacuo and the residue crystd. from EtOAc gave 28 g. XVIII, m. 173-4.degree. (EtOAc), .lambda. (MeOH) 232.5 and 279 m.mu. (log .epsilon. 4.48 and 4.26) .nu. (Nujol) 1680 and 1740 cm.-1; from the mother liquor of XVIII was isolated a slight amt. XIX, m. 204-5.degree. (MeOH, then EtOH, then EtOAc), .nu. (CHCl3) 1715 and 1670 cm.-1 and .nu. (Nujol) 1738 and 1648 cm.-1, its UV being like that of XVII. XVIII (10 g.) in 150 ml. MeOH contg. 10 ml. concd. H2SO4 refluxed and stirred 6 hrs. and cooled gave 9.3 g. Me ester (XX) of XVIII, m. 158-9.degree., its UV being like that of XVIII, .nu. (CH2Cl2) 1740 and 1684 cm.-1 XX (1 g.) refluxed and stirred 3 hrs. with 20 ml. N NaOH, cooled, made acid to Congo with dil.

aq. HCl, and the product isolated with EtOAc gave 870 mg. XVIII, m. 171-2.degree. (EtOAc). Esterification of XVIII with EtOH and concd. H2SO4 gave 90% Et ester of XVIII, m. 137-8.degree. (EtOH), its UV being like that of XVIII, .nu. (CH2Cl2) 1728 and 1678 cm.-1 XIX Me ester (XXI) (via CH2N2) m. 149-50.degree. (MeOH), its UV being like that of XIX, .nu. (CH2Cl2) 1738 and 1670 cm.-1 XXI (100 mg.) and 5 ml. 2N NaOH refluxed and stirred 3 hrs., acidified to Congo with dil. aq. HCl, and the product isolated with EtOAc gave 80 mg. XVII, m. 242-3.degree.; XVII Me ester (XVIIa) (via CH2N2) m. 172-3.degree. (MeOH). Esterification of XIX with EtOH and concd. H2SO4 gave XIX Et ester, m. 173-4.degree. (EtOH), its UV like that of XIX, .nu. (CH2Cl2) 1732 and 1672 cm.-1 XVI treated 6 hrs. at 10-15.degree. with 2 equivs. AlCl3 gave a mixt. which yielded 35-45% XVII and 15-20% XVIII after fractional crystn.; from the mother liquor of XVII and XVIII was isolated a slight amt. XXII, m. 182-3.degree., .lambda. (MeOH) 230, 267, and 310 m.mu. (log .epsilon. 4.42, 3.98, and 3.84), .nu. (CH2Cl2) 1702 cm.-1 and .nu. (Nujol) 1694 cm.-1 Me ester (XXIII) (via CH2N2) m. 134-6.degree. (MeOH), .lambda. (MeOH) 232, 269, and 312.5 m.mu. (log .epsilon. 4.54, 4.12, and 4.00), .nu. (CH2Cl2) 1732 and 1700 cm.-1 Sapon. of XXIII gave XXII, m. 182-3.degree.. Pure XIV (50 g.) treated with AcCl and SnCl4 as above gave 42.4 g. XVII, m. 241-2.degree. (MeOH). The anhydride of XV (from 10 g. XV) in 50 ml. PhNO2 treated dropwise with 7 ml. SnCl4 in 50 ml. PhNO2 with stirring and ice cooling, kept overnight at room temp., dild. with 100 ml. Et2O, the org. phase extd. twice with 100 ml. dil. HCl and B times with 100 ml. 2N NaOH, the alk. ext. made acid with 18% HCl, the product (9 g.) isolated with CHCl3, and crystd. from EtOAc gave 6.7 g. XVIII, m. 173-4.degree. (EtOAc); from the mother liquor was isolated 0.57 g. XIX, m. 204-5.degree. (EtOH). Treatment of 23 millimoles anhydride of XV with 7 g. AlCl3 in 100 ml. PhNO2 as above gave 8.9 g. cyclization product, which gave 6.2 g. XVIII, after crystn. from EtOAc; the product from the mother liquors recryst. repeatedly from EtOAc gave 0.82 g. XXII, m. 182-3.degree.. XVII (25 g.) suspended in 300 ml. MeOH contg. 15 ml. concd. H2SO4 refluxed and stirred overnight and cooled gave 24 g. XVIIa, m. 171-2.degree., its UV like that of XVII, .nu. (CH2Cl2) 1734 and 1678 cm.-1 Sapon. of XIIa gave XVII, m. 242-3.degree.. XVII (50 g.), 500 ml. EtOH, and 30 ml. concd. H2SO4 refluxed and stirred overnight and cooled gave 49 g. XVII Et ester (XXIV), m. 144-5.degree., its UV like that of XVII, .nu. (CH2Cl2) 1734 and 1680 cm.-1 XXIV (20 g.) and 20 g. HCO2Et in 300 ml. C6H6 treated with 2 g. Na and stirred at room temp. under N (moisture excluded) (the Na dissolved in 10-15 hrs.), the soln. cooled in ice, extd. exhaustively with iced dil. aq. NaOH, the combined exts. made acid to Congo with 18% HCl with cooling, and the product isolated with CH6 gave 15 g. 3-hydroxymethylene deriv. (XXV) of XXIV, m. 160-1.degree. (MeOH), .lambda. (EtOH) 241, 290, and 340 m.mu. (log .epsilon. 4.37, 4.01, and 4.11), .nu. (CH2Cl2) 1732, 1645, and 1600 cm.-1 Similar formylation of XVIIa was accompanied by ester exchange and gave the same yield of XXV. Crude XXV (20 g.) in 300 ml. MeOH treated portionwise with 20 g. NaBH4 with stirring and ice cooling, the mixt. kept 2 hrs. at 0-5.degree., stirred 1 hr. at 60.degree., treated with 300 ml. H2O, refluxed 3 hrs., the MeOH removed in vacuo, the residual aq. phase dild. with 300 ml. H2O, extd. with CHCl3, and acidified to Congo with 300 ml. dil. HCl with stirring and cooling gave 13 g. DL-isosikkimotoxic acid (XXVI), m. 232-5.degree. (decompn.) (90% EtOH), .lambda. (MeOH) 278 m.mu. (log .epsilon. 3.57), .nu. (Nujol) 3400, 3270, and 1692 cm.-1; from the CHCl3 ext. was isolated 1.1 g. neutral fraction, putative 1-(3,4,5-trimethoxyphenyl)-2,3-bis(hydroxymethyl)-4-hydroxy-6,7-dimethoxytetralin, m. 194-5.degree. (MeOH), .lambda. (EtOH) 280 m.mu. (log .epsilon. 3.55), .nu. (Nujol) 3380 cm.-1 (OH) and contained no carbonyl bands [tri-O-acetate m. 119-20.degree. (EtOH), .nu. (Nujol) 1722 cm.-1 and .nu. (CH2Cl2) 1730 cm.-1]. DL-XXVI (15 g.) in 100 ml. AcOH boiled 1 hr., the soln. treated with 20 ml. Ac2O, boiled 0.5 hr., treated with 20 g. NaOAc, boiled 0.5 hr., evapd. in vacuo, the residue partitioned between CHCl3 and aq. KHCO3, the CHCl3 layer, washed, dried, and evapd. gave 11.0

g. DL-.beta.-apopicrosikkimotoxin (XXVII), m. 226-7.degree. (EtOH, then CHCl3-EtOH, then CHCl3-EtOAc), .lambda. (EtOH) 281 m.mu. (log .epsilon. 3.62), .nu. (CHCl3) 1756 and 1694 cm.-1; from the combined mother liquors of various expts. was isolated by chromatography on silica gel and Al2O3 followed by crystn. slight amts. O-acetyl-DL-isosikkimotoxin (XXVIII), m. 240-1.degree. (CHCl3-EtOH), O-acetyl-DL-epiisosik kimotoxin (XXIX), m. 189-90.degree. (CHCl3-EtOH), and dehydroanhydrosikkimotoxin, m. 215-17.degree. (CH2Cl2-MeOH), .lambda. (EtOH) 258, 313, and 350 m.mu. (log .epsilon. 4.71, 3.96, and 3.63), .nu. (Nujol) 1744 cm.-1 and .nu. (CH2Cl2) 1758 cm.-1 DL-.beta.-XXVII could be prepd. in 41-5% yield without isolation of any cryst. intermediates starting from 0.1 mole XXIIIa or XXIV. XVII (4 g.) in 25 ml. 2N NaOH and 250 ml. H2O heated 50.degree., treated with 280 ml. 5% aq. KMnO4 in portions of 20 ml. with stirring, the pptd. MnO2 brought into soln. by means of SO2, the soln. acidified with concd. HCl, extd. with Et2O, the Et2O soln. extd. exhaustively with aq. KHCO3, dried, and fractionated gave 12 mg. unidentified compd., b0.001 200.degree., m. 200-1.degree. (MeOH); the KHCO3 ext. acidified and the product isolated with Et2O gave 870 mg. acidic fraction, which was crystd. from Et2O and then MeOH and sublimed in vacuo to give 300 mg. 4,5,2-(MeO)2(ZCO)C6H2CO2H (XXX), m. 213-14.degree., .lambda. (EtOH) 219, 254, and 291 m.mu. (log .epsilon. 4.55, 4.14, and 4.19), .nu. (Nujol) 1722, 1682, and 1645 cm.-1 [Me ester (XXXI) (via Et2O-CH2N2) b0.001 170.degree., m. 145-6.degree. (MeOH), .nu. (CH2Cl2) 1722 and 1672 cm.-1]; the residue of the mother liquors of XXX dissolved in MeOH, the soln. treated with Et2O-CH2N2, and fractionated gave 65 mg. ZCO2Me, b0.001 100.degree., m. 83-4.degree., and 160 mg. XXXI, b0.001 170-200.degree., m. 144-5.degree. (MeOH). 1-(3,4,5-Trimethoxyphenyl)-4-oxo-6,7-methylenedioxy-1,2,3,4-tetrahydro-2-naphthoic acid Me ester (Gensler, et al., CA 54, 15325f) (20 g.) in 300 ml. AcOH hydrogenated over 2 g. 10% Pd-C at room temp. and atm. pressure using a vibromixer gave 17.8 g. XXXII (R = Me), m. 157-8.degree. (MeOH), .lambda. (EtOH) 292.5 m.mu. (log .epsilon. 3.67), .nu. (Nujol or CH2Cl2) 1730 cm.-1 XXXII (R = Me) in 150 ml. N NaOH and 50 ml. EtOH refluxed and stirred 4 hrs., acidified to Congo, and the product isolated with CHCl3 gave 8.9 g. XXXII (R = H), m. 209-10.degree. (EtOH), its UV like that of XXXII (R = Me), .nu. (Nujol) 1692 cm.-1 XXXII (R = H) (500 mg.) and 500 mg. PhOH dissolved in 5 ml. AcOH by heating, the soln. treated with 15 ml. 85% H3PO4, stirred 2 hrs. at 120.degree., poured onto ice, extd. with Et2O, the ext. washed with H2O, dried, evapd. in vacuo, and the viscous residue dissolved in MeOH, the soln. treated with excess Et2O-CH2N2, kept 1 day, fractionated, and the distillate [560 mg., b0.001 190-210.degree., m. 145-7.degree. (MeOH)] recrystd. from EtOAc gave 340 mg. XXXIII, m. 147-8.degree., .lambda. (EtOH) 281 m.mu. (log .epsilon. 3.62, .nu. (Nujol) 1722 cm.-1 and .nu. (CH2Cl2) 1728 cm.-1 XVIIa (20 g.) in 300 ml. AcOH hydrogenated over 2 g. 10% Pd-C at room temp. and atm. pressure, after absorption of 2.2 l. H the soln. filtered, and evapd. gave 17.8 g. XXXIII, m. 145-6.degree. (MeOH), identical (mixed m.p. and ultraviolet and infrared spectra) with XXXIII prepd. above. XVIII (4 g.) in 25 ml. 2N NaOH treated at 50.degree. with 240 ml. 5% aq. KMnO4 in portions of 20 ml. with stirring, the pptd. MnO2 brought into soln. by means of SO2, the soln. acidified with concd. HCl, extd. with Et2O, the Et2O soln. washed with H2O, extd. exhaustively with aq. KHCO3, the alk. exts. acidified, extd. with Et2O, the ext. washed, dried, evapd., and the residue (1.2 g.) esterfied with Et2O-CH2N2, and the product fractionated gave 220 mg. 3,4(MeO)2C6H3CO2Me, b0.001 110-30.degree., m. 57-8.degree. (after 2 redistns.), 102 mg. intermediate fraction, and then the main fraction, which was filtered through silica gel in Et2O soln. and crystd. from C6H6-cyclohexane to give 390 mg. 2,3,4,5-MeCO2(MeO)3C6HCOC6H3(MeO)2-3,4, m. 134.degree., .lambda. (EtOH) 233, 281, and 313 m.mu. (log .epsilon. 4.42, 4.10, and 4.08), .nu. (CH2Cl2) 1728 and 1658 cm.-1 DL-XXVI (3 g.) suspended in 150 ml. 2N H2SO4 stirred 1 hr. at 100.degree., cooled, extd. with CHCl3, the ext. washed with dil. aq. Na2CO3 and H2O, dried, and evapd., and the residual neutral fraction chromatographed on silica

gel and the column eluted with CH2Cl2 gave 650 mg. DL-.beta.-XXVII, m. 223-4.degree. (EtOH); further elution with CHCl3 contg. 2% MeOH gave 1.21 g. DL-isosikkimotoxin (XXXIV), m. 256-7.degree. (EtOH, then CHCl3-EtOH, then EtOH), .lambda. (EtOH) 276.5 m.mu. (log .epsilon. 3.58), .nu. (Nujol) 3450 nd 1750 cm.-1 and .nu. (CHCl3) 1784 cm.-1; the product from the mother liquors from the crystn. of DL-XXXIV acetylated with Ac2O in pyridine at room temp. gave 310 mg. XXIX, m. 189-90.degree. (CHCl3-EtOH), .nu. (CH2Cl2) 1784 and 1738 cm.-1, its UV like that of DL-XXXIV. DL-XXVI heated in portions of 500 mg. in a preheated oil bath at various times and temps. and the neutral fraction isolated gave these results: after 0.5 hr. at 180.degree., 300 mg. neutral fraction from which 220 mg. LD-XXXIV was isolated; after 1 hr. at 170.degree., 340 mg. neutral fraction which gave 280 mg. DL-XXXIV; after 0.5 hr. at 240.degree., 450 mg. neutral fraction, from which no pure DL-XXXIV could be isolated.

After 1 and 20 hrs. in boiling xylene, 500 mg. portions DL-XXVI yielded 290 and 280 mg. neutral fractions, resp., from which were isolated 260 and 240 mg. DL-XXXIV, resp. DL-XXVI (5 g.) dissolved in 100 ml. HCONMe2 by heating, the soln. dild. with 200 ml. dioxane, treated with 2.5 g. dicyclohexylcarbodiimide in 10 ml. dioxane, stirred 3 hrs. at room temp., evapd. in vacuo, and the residue crystd. from CHCl3 gave 1.5 g. N,N'-dicyclohexylurea, m. 228-30.degree.; the filtrate evapd. and the residue crystd. from MeOH gave 4.05 g. DL-XXXIV, m. 260-1.degree. (CHCl3-EtOH). DL-XXXIV (1 g.) suspended in 20 ml. N NaOH stirred 2 hrs. at 100.degree. and the resulting soln. acidified with 25 ml. N HCl gave DL-XXVI, m. 232.degree. (decompn.) (EtOH). DL-XXXIV (500 mg.) suspended in 75 ml. CHCl3 refluxed and stirred 2.5 hrs. with 3.5 g. MnO2, the soln. filtered, and evapd. in vacuo gave 300 mg. DL-isosikkimotoxone, m. 199-200.degree. (CH2Cl2-MeOH), .lambda. (EtOH) 233, 276, and 312 m.mu. (log .epsilon. 4.48, 4.06, and 3.88), .nu. (Nujol) 1784 and 1686 cm.-1 Acetylation of DL-XXXIV with Ac2O in pyridine at room temp. or 100.degree. and by heating with Ac2O alone gave DL-XXVIII, m. 240-1.degree. (CHCl3-EtOH), its UV like that of DL-XXXIV, .nu. (CH2Cl2) 1784 and 1738 cm.-1, giving DL-XXVI on sapon. DL-XXXIV (1 g.) in 16 ml. AcOH and 8 ml. Ac2O boiled 1 hr., evapd. in vacuo, and the residue crystd. from EtOH gave 280 mg. DL-XXVIII, m. 240-1.degree.; from the mother liquor was isolated 420 mg. DL-XXIX, m. 191-2.degree. (EtOAc, then EtOH, then EtOAc), its UV like that of DL-XXXIV, .nu. (CH2Cl2) 1780 and 1736 cm.-1 DL-XXIX (1.2 g.) heated 4 hrs. at 100.degree. with 25 ml. N NaOH, the soln. dild. with 20 ml. H2O, and acidified with 30 ml. N HCl with cooling gave 820 mg. DL-epiisosikkimotoxic acid (XXXIVa), m. 191-2.degree. (decompn.) (EtOH), .lambda. (EtOH) 279 m.mu. (log .epsilon. 3.58), .nu. (Nujol) 3450, 3370, and 1705 cm.-1 Pyrolysis of 300 mg. DL-XXVIII (0.5 hr. at 250.degree./11 mm.) followed by distn. in vacuo gave 250 mg. DL-.beta.-XXVII, m. 224-5.degree. (CHCl3-EtOH). Similar pyrolysis of 300 mg. DL-XXIX gave 245 mg. DL-.beta.-XXVII, m. 224-5.degree.. Finely powd. DL-XXVI (3 g.) suspended in 100 ml. Et2O treated with excess Et2O-CH2N2 with stirring and cooling, kept 2 days at 5.degree., evapd. in vacuo, the residue dissolved in CHCl3, the soln. washed with cold dil. aq. NaOH and H2O, dried, evapd. in vacuo, and the residue (2.95 g.) chromatographed on silica gel and the column eluted with CH2Cl2 contg. 1.0% MeOH gave 105 mg. DL-XXXIV, m. 257-8.degree. (CHCl3-EtOAc); further elution with CHCl3 contg. 2% MeOH gave 2.0 g. Me ester of DL-XXVI, m. 188-9.degree. (CH2Cl2-MeOH), .lambda. (EtOH) 278.5 m.mu. (log .epsilon. 3.57), .nu. (Nujol) 3520, 3420, and 1724 cm.1 [Ac deriv. m. 161-2.degree. (EtOH), its UV like that of DL-XXXIV, .nu. (Nujol or CH2Cl2) 1732 cm.-1]. DL-.beta.-XXVII (15 g.) suspended in 50 ml. EtOH and 75 ml. 2N NaOH refluxed and stirred 2 hrs., the resulting soln. concd. in vacuo to 50 ml., dild. with 50 ml. H2O, made acid to Congo with 18% HCl with stirring and ice cooling, extd. with CH2Cl2, the ext. washed neutral with H2O, dried, concd. in vacuo at 40.degree. to small vol. and dild. with Et2O gave 14.2 g. DL-.alpha.-apopicrosikkimotoxic acid (XXXV), m. 157-8.degree. (decompn.) (CH2Cl2-Et2O), .lambda. (EtOH) 214 and 285 m.mu. (log .epsilon.

4.59 and 3.97), .nu. (Nujol or KBr) 1726 and 3330 cm.-1 DL-.alpha.-XXXV (2 g.) in 100 ml. 2N H2SO4 heated within 30 min. to 100.degree., stirred 1 hr. at 100.degree., and the soln. cooled in ice gave 1.02 g. DL-.alpha.-apopicrosikkimotoxin (XXXVI), m. 222-3.degree. (sinters at 200.degree.), .lambda. (0.001N alc.-HCl) 285 m.mu. (log .epsilon. 3.91), .nu. (Nujol) 1770 cm.-1 and .nu. (CH2Cl2) 1780 cm.-1 DL-.alpha.-XXXV (5 g.) in 50 ml. abs. CH2Cl2 stirred 1 hr. with 2.5 g. dicyclohexylcarbodiimide in CH2Cl2, the soln. filtered, and evapd. in vacuo gave 4.6 g. DL-.alpha.-XXXVI, m. 222-3.degree. (sinters at 190-200.degree.) (MeOH). DL-XXXVI (500 mg.) heated 15 min. at 200.degree. and distd. at 220-30.degree./0.001 mm. gave 480 mg. DL-.beta.-XXVII, m. 224-5.degree.. DL-.alpha.-XXXVI (5 g.) in 50 ml. abs. CH2Cl2 and 50 ml. AcOH satd. with HCl with stirring and ice-salt cooling, kept overnight at 0.degree., poured onto ice, extd. with CH2Cl2, the ext. washed with ice H2O, cold aq. KHCO3, and ice H2O, dried, evapd. in vacuo, and the residue dissolved in 50 ml. Me2CO, the soln. treated with 50 ml. H2O and 5 g. CaCO3, refluxed and stirred 2 hrs., cooled, the CaCO3 dissolved with dil. HCl, the mixt. extd. with CHCl3, the ext. washed with dil. aq. KHCO3 and H2O, dried, evapd. in vacuo, and the residue (4.1 g.) chromatographed on silica gel, and the column eluted with CHCl3 gave a mixt. of DL-.alpha.-XXXVI and DL-.beta.-XXVII, which yielded 480 mg. DL-.beta.-XXVII, b0.001 220-30.degree., m. 224-5.degree., after distn.; the column eluted with CHCl3 contg. 1% MeOH and the product crystd. from MeOH gave 2.95 g. DL-II, m. 178-9.degree. (CHCl3-EtOH, then EtOAc), .lambda. (EtOH) 280 m.mu. (log .epsilon. 3.65), .nu. (CH2Cl2) 1772 cm.1; from the mother liquor was isolated 430 mg. DL-epipicrosikkimotoxin (XXXVII), m. 191-2.degree. (MeOH, then EtOAc), its UV like that of DL-II, .nu. (CH2Cl2) 1765 cm.-1 O-Ac deriv. of DL-II, m. 185-6.degree. (MeOH), its UV like that of DL-II, .nu. (CH2Cl2) 1774 and 1730 cm.-1 O-Ac deriv. of DL-XXXVII m. 179-80.degree. (MeOH), its UV like that of DL-II, .nu. (CH2Cl2) 1766 and 1736 cm.-1 DL-II (300 mg.) in 10 ml. CHCl3 refluxed and stirred 2 hrs. with 1.5 g. MnO2, the ppt. filtered off, washed with CHCl3, the filtrate evapd., and the residue dissolved in CH2Cl2 and the soln. filtered through Al2O3 gave 210 mg. DL-picrosikkimotoxone (XXXVIII), m. 188-9.degree. (MeOH), .lambda. (EtOH) 236,282, and 318 m.mu. (log .epsilon. 4.42, 4.08, and 3.92), .nu. (CH2Cl2) 1776 and 1668 cm.-1 DL-XXXVII (100 mg.) oxidized as above with 500 mg. MnO2 in 5 ml. CHCl3 gave 60 mg. DL-XXXVIII, m. 187-8.degree. (MeOH). DL-II (500 mg.) in 5 ml. Me2CO and 10 ml. N HCl refluxed 0.5 hr., dild. with H2O, the product (mixt. of 3 compds.) isolated with CHCl3, chromatographed on silica gel, and the column eluted with CH2Cl2 gave 30 mg. DL-.beta.-XXVII, m. 212-13.degree. (MeOH); clution with CH2Cl2 contg. 1% MeOH gave first 280 mg. DL-XXXVII, m. 190-1.degree. (EtOH, then MeOH, then EtOAc), and then 85 mg. unchanged DL-II, m. 178-9.degree. (EtOAc). DL-.alpha.-XXXV (17.2 g.)in 200ml. MeOH mixed with 12 g. cinchonine (XXXIX) in 100 ml. MeOH and 100 ml. CH2Cl2, the soln. concd. to 75 ml., dild. with 100 ml. Me2CO, boiled briefly, and cooled gave 13.7 g. (-)-.alpha.-XXXV XXXIX salt (XL), m. 204-5.degree. (decompn.) (MeOHMe2CO), [.alpha.]D -101.degree. (CHCl3); from the mother liquor was isolated an addnl. 1.2 g. XL, m. 201-2.degree. (decompn.), [.alpha.]D -98.degree. (CHCl3). XL (20 g.) shaken with dil. HCl and CH2Cl2 and the org. ext. evapd. gave 11.5 g. (-)-.alpha.-XXXV, noncryst., [.alpha.]D -172 .+-. 5.degree. (CHCl3), its UV like that of DL-.alpha.-XXXV. Crude (-)-.alpha.-XXXV (10 g.) in 100 ml. abs. CH2Cl2 treated with 4.8 g. dicyclohexylcarbodiimide, stirred 2 hrs. at room temp., the ppt. filtered off, the filtrate concd. in vacuo, and dild. with MeOH gave 8.7 g. (+)-.alpha.-XXXVI, m. 165-6.degree., [.alpha.]D 66.degree.(CHCl3), its ultraviolet and infrared spectra like that of DL-.alpha.-XXXVI. (-)-.alpha.-XXXV (500 mg.) distd. at 230.degree./0.001 mm. gave 450 mg. (+)-.beta.-XXVII, resin, [.alpha.]D 77.degree.(CHCl3), its ultraviolet and infrared spectra like that of DL-.beta.-XXVII. (+)-.alpha.-XXXVI (200 mg.) distd. at 230.degree./0.001 mm. gave (+)-.beta.-XXVII, colorless glass, which was pptd. from CH2Cl2 with petr.

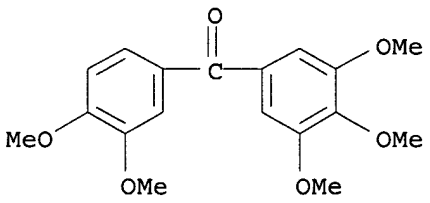
ether to give amorphous (+)-.beta.-XXVII, m. 120.degree. to 145-50.degree., [.alpha.]D 78.degree. (CHCl3). (+)-.alpha.-XXXVI (9.1 g.) in 120 ml. abs. CH2Cl2 and 100 ml. AcOH satd. with HCl with stirring and ice-salt cooling, kept 3 hrs. at 0.degree., poured onto ice, extd. with CH2Cl2, the ext. washed with ice H2O, cold aq. KHCO3, and ice H2O, dried, evapd. in vacuo, the residue dissolved in 150 ml. Me2CO, the soln. treated with 150 ml. H2O and 10 g. CaCO3, refluxed and stirred 2 hrs., cooled, treated with dil. HCl to dissolve the CaCO3, extd. with CHCl3, the ext. washed with dil. Na2CO3 and H2O, dried, evapd. in vacuo, the residue (9 g.) chromatographed on silica gel, and the column eluted with CH2Cl2 gave a mixt. of .alpha.-XXXVI and .beta.-XXVII, which was distd. at 230.degree./0.001 mm. to give 1.6 g. (+)-.beta.-XXVII, amorphous, [.alpha.]D 76.degree. (CHCl3); further elution with CHCl3 contg. 1% MeOH gave 5.44 g. (-)-II, m. 148-9.degree. (EtOH-Et2O), [.alpha.]D -5.5.degree. (CHCl3) and -1.degree. (Me2CO), .lambda. (EtOH) 280 m.mu. (log .epsilon. 3.60), .nu. (CH2Cl2) 1772 cm.-1; from the mother liquor of (-)-II was isolated 1.5 g. crude (+)-XXXVII, [.alpha.]D 30.degree. (CHCl3), .lambda. (EtOH) 279 m.mu. (log .epsilon. 3.62), .nu. (CH2Cl2) 1764 cm. -1 Crystn. of (-)-II from EtOH-H2O gave (-)-II.H2O, m. 92-4.degree. (foaming). (-)-II kept at room temp. with Ac2O in pyridine gave O-Ac deriv. of (+)-II, m. 144-5.degree. (MeOH-Et2O), [.alpha.]D 10.6.degree. (CHCl3), its ultraviolet and infrared spectra like that of II and XXXVIIa, resp. Crude (+)-XXXVII treated similarly gave O-Ac deriv. of (-)-XXXVII, m. 192-3.degree. (EtOH), [.alpha.]D -16.degree. (CHCl3); on prolonged standing the EtOH mother liquor deposited 20% O-Ac deriv. of (+)-II, m. 142-3.degree., [.alpha.]D 8.5.degree. (CHCl3). (-)-II (500 mg.) in 5 ml. Me2CO and 10 ml. N HCl refluxed 0.5 hr., dild. with H2O, the product isolated with CHCl3, chromatographed on silica gel, and the column eluted with CH2Cl2 gave 30 mg. DL-.alpha.-XXXVI; elution with CH2Cl2 contg. 1% MeOH gave (from the first 3 20-ml. eluates) 150 mg. (+)-XXXVII, noncryst., [.alpha.]D 54.degree. (CHCl3), and from the succeeding fractions (whose rotation fell to 14.degree.) unchanged (-)-II, m. 145-7.degree. (EtOH-Et2O), [.alpha.]D -5.degree. (CHCl3). The residue (50.8 g.) from the mother liquor of XL dissolved in 500 ml. CH2Cl2, the soln. washed 3 times with 250 ml. 2N HCl and ice and then 3 times with 150 ml. ice-H2O, the H2O washings reextd. twice with 150 ml. CH2Cl2, the combined org. solns. dried, and evapd. in vacuo gave 30 g. crude (+)-XXXV, [.alpha.]D 115.degree.(CHCl3), which deposited 8.0 g. (.+-.)-.alpha.-XXXV, m. 151-2.degree. (decompn.), [.alpha.]D 0.degree. (CHCl3), from CH2Cl2-Et2O on prolonged standing; from the mother liquor was isolated 22 g. (+)-.alpha.-XXXV, [.alpha.]D 150.degree. (CHCl3). Crude (+)-.alpha.-XXXV (51 millimoles) in 100 ml. CH2Cl2 mixed with 9.5 g. (-)-ephedrine (XLI) in 50 ml. CH2Cl2 and evapd. in vacuo gave 24.4 g. (+)-.alpha.-XXXV (-)-XLI salt (XLII), m. 147-9.degree. (Me2CO-cyclohexane, then CH2Cl2C6H6), [.alpha.]D 219.degree. (CHCl3). XLII (17.9 g.) treated with dil. HCl and CH2Cl2 and the CH2Cl2 layer evapd. gave 12.9 g. (+)-.alpha.-XXXV, noncryst., [.alpha.]D 170.degree. (CHCl3). Crude (+)-.alpha.-XXXV (12.9 g.) in 100 ml. CH2Cl2 treated with 6.2 g. dicyclohexyl-carbodiimide in 25 ml. CH2Cl2, stirred 2 hrs. at room temp., filtered, the filtrate concd. in vacuo to small vol., and dild. with MeOH gave 9.9 g. (-)-.alpha.-XXXVI, m. 163-4.degree. (CH2Cl2-MeOH), [.alpha.]D -65.degree. (CHCl3), its ultraviolet and infrared spectra like that of DL-.alpha.-XXXVI. (-)-.alpha.-XXXVI (500 mg.) distd. at 230.degree./0.001 mm. gave (-)-.beta.-XXVII, colorless glass, which was isolated as an amorphous ppt. by pptn. from CH2Cl2 with petr. ether, [.alpha.]D -77.degree. (CHCl3), its ultraviolet and infrared spectra like that of DL-.beta.-XXVII. (-)-.alpha.-XXXVI (8.2 g.) in 100 ml. abs. CH2Cl2 and 75 ml. AcOH satd. with HCl with stirring and ice-salt cooling, kept 3 hrs. at 0.degree., poured onto ice, extd. with CH2Cl2, the ext. washed with ice H2O, cold aq. KHCO3, and ice H2O, dried, evapd. in vacuo, the residue dissolved in 100 ml. Me2CO, the soln. treated with 100 ml. H2O and 10 g. CaCO3, refluxed and stirred 2 hrs., cooled, treated with dil. HCl to dissolve the CaCO3,

extd. with CHCl3, the ext. washed with dil. aq. Na2CO3 and H2O, dried, evapd. in vacuo, and the residue chromatographed on silica gel and the column eluted with CH2Cl2 gave (from the initial fraction) a mixt. of .alpha. and .beta.-isomers, which was distd. at 230.degree./0.001 mm. to give 985 mg. (-)-.beta.-XXVII, amorphous, [.alpha.]D -76.degree. (CHCl3); continued elution gave 1.5 g. mixt. of compds.; further elution with CHCl3 contg. 2% MeOH gave 6.5 g. mixt. of compds., which was crystd. from EtOH-Et2O to give 4.4 g. (+)-II, m. 148-9.degree. (MeOH-Et2O), [.alpha.]D 6.6.degree. (CHCl3), and, from the mother liquor, 1.5 g. (-)-XXXVII, noncryst., [.alpha.]D -30.degree. (CHCl3). (+)-II (250 mg.) treated with Ac2O in pyridine at room temp. gave 260 mg. O-Ac deriv. of (-)-II, m. 144-5.degree. (EtOH-Et2O), [.alpha.]D -10.5.degree. (CHCl3), its ultraviolet and infrared spectra like that of the (+)-analog. From crude (-)-XXXVII was similarly prepd. O-Ac deriv. of (+)-XXXVII, m. 190-1.degree. (EtOH), [.alpha.]D 15.1.degree. (CHCl3), its ultraviolet and infrared spectra like that of the (-)-analog; from the mother liquor was obtained by diln. with Et2O 25% O-Ac deriv. of (-)-II, m. 143-5.degree., [.alpha.]D -10.degree. (CHCl3). (-)-II (500 mg.) in 10 ml. AcOH hydrogenated over 200 mg. 10% Pd-C at 50.degree. and atm. pressure, after absorption of 30 ml. H the soln. filtered, and evapd. in vacuo gave 370 mg. deoxypicrosikkimotoxin (XLIII), m. 148-9.degree. (EtOH), [.alpha.]D 5.4.degree. (CHCl3), .lambda. (MeOH) 282 m.mu. (log .epsilon. 3.68), .nu. (CH2Cl2) 1768 cm.-1 III (25 g.) in 1 l. AcOH hydrogenated over 7 g. 10% Pd C at 60.degree. and atm. pressure using a vibromixer (1550 ml. H absorbed in 2.5 hrs.) gave 21.8 g. deoxypicropodophyllin (XLIV), m. 164-5.degree. (EtOH, then CHCl3MeOH), [.alpha.]D 34.degree. (CHCl3), .lambda. (MeOH) 290 m.mu. (log .epsilon. 3.72), .nu. (CH2Cl2) 1766 cm.-1 XLIV (2 g.) and 2 g. PhOH in 20 ml. AcOH mixed with 60 ml. 83% H3PO4, heated and stirred 2 hrs. at 120.degree., cooled, poured onto ice, extd. with Et2O, the ext. washed with H2O, dried, evapd. and the residue heated in vacuo at 200.degree. and crystd. from EtOH gave 1.2 g. demethylenedeoxypicropodophyllin (XLV), m. 225-6.degree. (CHCl3-EtOH), [.alpha.]D 54.8.degree. (EtOH), .lambda. (MeOH) 287.5 m.mu. (log .epsilon. 3.71), .nu. (Nujol) 3400 and 1720 cm.-1; di-O-Ac deriv. m. 147-8.degree. (EtOH-Et2O), [.alpha.]D 22.5.degree.(CHCl3), .lambda. (MeOH) 270 m.mu. (log .epsilon. 3.35), .nu. (CH2Cl2) 1770 cm.-1 XLV (1 g.) suspended in a small amt. MeOH kept 1 day at room temp. with excess Et2O-CH2N2 with occasional shaking, evapd. in vacuo, and the residue crystd. from Et2O gave XLIII, m. 121-2.degree. (solidi-fies and then m. 147-9.degree.), [.alpha.]D 4.5.degree. (CHCl3); recrystn. from EtOH gave directly XLIII, m. 148-9.degree., [.alpha.]D 6.0.degree. (CHCl3), identical with XLIII prepd. by hydrogenation of (-)-II. Additional information in printed abstract.

IT **22699-97-4**, Benzophenone, 3,3',4,4',5-pentamethoxy-
(prepn. of)

RN 22699-97-4 CAPLUS

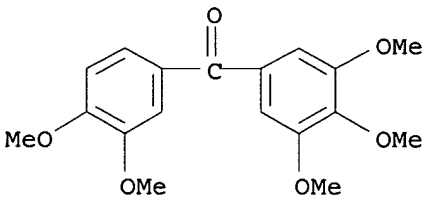
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 31 OF 35 CAPLUS COPYRIGHT 2003 ACS

AN 1962:462460 CAPLUS

DN 57:62460
OREF 57:12371c-e
TI Lignans. II. Synthesis of benzophenones as intermedi-ates for the synthesis of lignans
AU Diwadkar, A. B.; Shroff, H. D.; Kulkarni, A. B.
CS Inst. Sci., Bombay
SO Current Sci. (India) (1962), 31, 149-50
DT Journal
LA Unavailable
AB cf. J. Sci. Ind. Res (India) 20B, 599(1961). Condensation of isovanillic acid with guaiacol (I) by means of polyphosphoric acid gave 35% 3,4-MeO(HO)C6H3COC6H3(OH)OMc-3,4, m. 178.degree.; 2,4-dini-trophenylhydrazone m. 243.degree.. Similar condensation of various reactants gave the following results (reactants, compd. formed, % yield, m.p., m.p. 2,4-dinitrophenylhy-drazone given): veratric acid and veratrole (II), [3,4-(MeO)2C6H3] 2CO, 98, 145.degree., -; trimethylgallic acid and II, 3,4,5-(MeO)3C6H2COC6H3(OMe)2-3,4, 95, 120.degree., -; piperonylic acid and II, 3,4-CH2O2C6H3COC6H3(OMe)2-3,4, -, 165.degree., 241.degree.; anisic acid (III) and II, 3,4-(MeO)2C6H3COC6-H4OMe-4 (IV), 98, 100.degree., -; III and I, 3,4-(MeO)2C6H3-COC6H4OH-4 (V), 44, 114.degree., 233.degree. (methylation of V gave IV, m. 100.degree.).
IT **22699-97-4**, Benzophenone, 3,3',4,4',5-pentamethoxy- (prepn. of)
RN 22699-97-4 CAPLUS
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



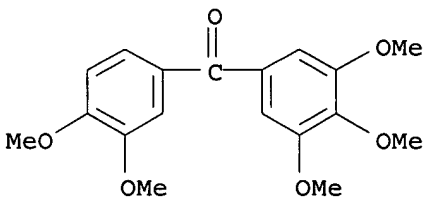
L7 ANSWER 32 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1962:24851 CAPLUS
DN 56:24851
OREF 56:4654d-i,4655a-b
TI Lignans. I. Acylation in polyphosphoric acid as a route to intermediates
AU Ayres, D. C.; Denney, R. C.
CS John Cass Coll., London
SO J. Chem. Soc. (1961) 4506-9
DT Journal
LA Unavailable
AB Phenols and their ethers with alkoxybenzoic acids in polyphosphoric acid (PPA) gave esters and benzophenones, resp., the latter being intermediates in prospective syntheses of phenyltetrahydronaphthalene lignans. Phosphorylation was found to affect the course of some reactions. PPA was prepd. by mixing P2O5 8 with 90% H3PO4 (d. 1.75) 5 parts and stirring 30 min. at 85.degree. before use. Vanillic acid (I) (5.0 g.) and 4.1 g. veratrole (II) stirred into PPA (from 50 g. P2O5) and the soln. kept 30 min. at 80-3.degree. and poured into 250 ml. ice H2O gave 8.0 g. 4-hydroxy-3,3',4'-trimethoxybenzophenone (III), m. 142-3.degree. (1:1 EtOH-H2O), .nu. 3300 and 1669 cm.-1 III (1.0 g.) in 3% aq. NaOH shaken 15 min. at room temp. with 1.0 g. Me2SO4 gave 0.81 g. [3,4-(MeO)2C6H3]2CO, m. 144.degree. (EtOH), .nu. 1635 cm.-1 3,4,5-(MeO)3C6H2CO2H (IV) (4.6 g.) and 3.0 g. III in PPA (from 35 g. P2O5) treated as above gave 6.9 g. 3,4,5-(MeO)3C6H2COC6H3(OMe)2-3,4, m.

118-19.degree. (EtOH), .nu. 1630 cm.-1 I (5 g.) and 3.2 g. PhOMe in PPA (from 50 g. P2O5) gave 8 g. 3,4-MeO(HO)C6H3COC6H4OMe-4 (V), m. 109-10.degree., .nu. 3300 and 1635 cm.-1 V (1.0 g.) methylated with 0.8 g. Me2SO4 as above and the mixt. heated 30 min. on a H2O bath gave 0.80 g. 3,4-(MeO)2C6H3COC6H4OMe-4, m. 98-9.degree. (1:1 EtOH-H2O), .nu. 1636 cm.-1 IV (10.6 g.) and 8.4 g. 1,2,3-C6H3(OMe)3 (VI) in PPA (from 88 g. P2O5) treated as above gave 16.3 g. 2,3,4-(MeO)3C6H2COC6H2(OMe)3-3,4,5 (VII), m. 121.degree. (aq. EtOH), .nu. 1650 cm.-1 1,2-CH2O2C6H4 (0.50 g.) in PPA stirred 2 hrs. at 20-2.degree. and the mixt. dild. with H2O gave 2 polymeric products, one (0.26 g.) by Et2O extn. and the other (0.11 g.) by subsequent C6H6 extn. o-C6H4(OH)2 (VIII) (13.0 g.) and 25.0 g. IV in PPA (from 200 g. P2O5) heated and stirred 40 min. at 85.degree. and poured into 400 ml. ice H2O gave 33 g. 2-HOC6H4O2CC6H2(OMe)3-3,4,5 (IX), m. 178-9.degree. (1:1 EtOH-H2O), .nu. 3450 and 1736 cm.-1 Repetition of this expt. with 11.0 g. VIII and 42.4 g. IV and the product (35 g.) washed with aq. NaHCO3 gave 30 g. IX. VIII and 4,3,5-HO(MeO)2C6H2CO2H (X) (each 0.05 mole) treated as above gave 75% 4,3,5-HO(MeO)2C6H2CO2C6H4OH-2, m. 212.degree. (1:1 EtOH-H2O), .nu. 3350 and 1725 cm.-1 1,2-CPh2O2C6H3 (Mason, CA 39, 40642) (3.0 g.) and 2.32 g. IV in PPA (from 25 g. P2O5) treated as above (35 min. at 85.degree.) gave 4.9 g. IX, m.p. and mixed m.p. 176-7.degree. (4:1 EtOH-H2O). VIII and IV (each 0.02 mole) refluxed 5 hrs. in 40 ml. Et2O contg. 45% BF3, the mixt. cooled, treated with 100 ml. H2O, the Et2O distd., the hot liquor decanted from 2 g. insol. oil, and the latter crystd. from 1:1 EtOH-H2O gave IX, m. 179.degree.; methylation of 1.0 g. IX gave 0.70 g. 2-MeOC6H4O2CC6H2(OMe)3-3,4,5, m. 113.degree. (EtOH), an identical compd. being obtained on methylation of X prepd. above. VIII (2.5 g.) and 10.5 g. 3,4,5-(MeO)3C6H2COCl kept molten 2 hrs., the melt cooled, and the solid washed with aq. NaHCO3 gave 11.4 g. o-C6H4[O2CC6H2(OMe)3-3,4,5]2 (XI), m. 154.degree. (1:1 C6H6-petr. ether). XI (4.0 g.) in 70 ml. PhNO2 heated 4 hrs. on a steam bath with 3.5 g. AlCl3 and the mixt. cooled, acidified with 20 ml. 5N HCl, and steam distd. gave 2.8 g. X, m. 203.degree.; VIII was present in the steam distillate (FeCl3 test). Gallic acid (XII) (4.0 g.) and 3.95 g. VI stirred in PPA (from P2O5), the soln. kept 1 hr. at 90.degree., poured into 100 ml. ice H2O, the ppt. (0.5 g.) filtered off, the filtrate extd. with Et2O (the ext. contained 2.2 g. material; the ppt. and the extd. material were a mixt. of XII and VI, predominantly VI), the aq. filtrate refluxed 2 hrs. with 200 ml. 2N HCl, and the product isolated with Et2O gave 2.7 g. 3,4,5-(HO)3C6H2COC6H2(OMe)3-2,3,4, m. 181-2.degree. (1:1 EtOH-H2O), .nu. 3300 and 1663 cm.-1, methylation giving 83% VII, m. 121-2.degree.. 2-MeOC6H4OH (XIII) and I (each 0.03 mole) in PPA (from 50 g. P2O5) heated 30 min. at 80.degree., poured into 250 g. ice H2O, and the mixt. worked up gave 74% recovered I and 60% recovered XIII; no ketone was detected.

IT **22699-97-4**, Benzophenone, 3,3',4,4',5-pentamethoxy-
93435-68-8, Benzophenone, 3,4,5-trihydroxy-3',4',5'-trimethoxy-
(prepn. of)

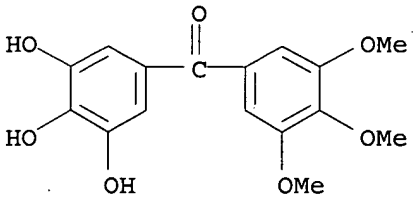
RN 22699-97-4 CAPLUS

CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)

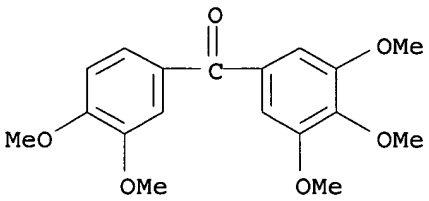


RN 93435-68-8 CAPLUS

CN Benzophenone, 3,4,5-trihydroxy-3',4',5'-trimethoxy- (7CI) (CA INDEX NAME)



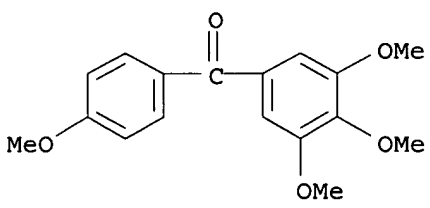
L7 ANSWER 33 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1961:54194 CAPLUS
DN 55:54194
OREF 55:10398d-g
TI Polyoxyphenols of Western red cedar (Thuja plicata). II. Degradation studies on plicatic acid, a possible lignan acid
AU Gardner, J. A. F.; MacDonald, B. F.; MacLean, Harold
CS Dept. Northern Affairs and Natl. Resources, Ottawa
SO Can. J. Chem. (1960), 38, 2387-94
DT Journal
LA Unavailable
AB cf. CA 54, 6120i. Plicatic acid, C20H22O10, a polyoxyphenol from western red cedar heartwood, described previously, loc. cit., was further characterized by prepn. and analysis of addnl. cryst. derivs. Cryst. tri-Me and tri-Et ethers were oxidized by alk. permanganate. The tri-Me ether yielded 3,4,5-trimethoxybenzoic acid, 4,5-dimethoxyphthalic acid, a pentamethoxy anthraquinone, and a pentamethoxy o-benzoylbenzoic acid which decarboxylated to 3,3',4,4',5-pentamethoxybenzophenone. Correspondingly, the tri-Et ether gave 3,4-diethoxy-5-methoxybenzoic and 4-ethoxy-5-methoxyphthalic acids, a mixt. of pentaalkoxy anthraquinones and a pentaalkoxy o-benzoylbenzoic acid, which decarboxylated to 3,3,'4-triethoxy-4',5-dimethoxybenzophenone, identified by cleavage to 3-ethoxy-4-methoxybenzoic and 3,4-diethoxy-5-methoxybenzoic acids. These results fixed the positions of the 2 methoxyl, 3 phenolic hydroxyls, and mode of linkage of the two benzene rings. Further evidence indicated that plicatic acid was probably a lignan of the 4-aryl-tetrahydronaphthalene series.
IT **22699-97-4**, Benzophenone, 3,3',4,4',5-pentamethoxy-
(prepn. of)
RN 22699-97-4 CAPLUS
CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 34 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1960:11353 CAPLUS
DN 54:11353
OREF 54:2282g-i,2283a-c
TI Intermediates necessary in the synthesis of some resinols and derivatives. I

09/584,952

AU Traverso, Giorgio
CS Univ. Pavia
SO Gazz. chim. ital. (1957), 87, 67-75
DT Journal
LA Unavailable
AB To 25 g. tech. vanillic acid in 200 cc. H2O contg. 12 g. NaOH (rather than the usually employed C5H5N) was added with cooling 30 g. ClCO2Et over 2 hrs. and the soln. decanted and acidified with 50% H2SO4 to obtain 33 g. 4-OCO2Et compd., m. 146-7.degree., and therefrom crude carbethoxyvanillic acid chloride (I) by reaction with 2 parts SOCl2. Impure 80% 3-methoxy-4-hydroxy-3',4'-dimethoxybenzophenone (II), m. 50-60.degree., was obtained from 11 g. I and 7 g. veratrole in 100 cc. CS2 with 11 g. anhyd. sublimed AlCl3 added with cooling and stirring, the spontaneous reaction allowed to proceed 1 hr., then the mixt. heated 1 hr. on the water bath, cooled, and treated with ice and concd. HCl; the CS2 from the org. phase and an ext. of the H2O phase was evapd., the residue (4-CO2Et compd.) taken up in 100 cc. EtOH, and sapond. with 20 g. NaOH in 50 cc. H2O by refluxing 0.5 hr.; dilg. the product with an equal vol. of H2O, filtering, acidifying with "dil. salts" in the presence of small amts. of Na2S2O4, and drying over P2O5 gave 80% II, analyzed after conversion to the 4-acetyl deriv., m. 147-8.degree., in 12 hrs. at room temp. in Ac2O pyridine, or to [3,4-(MeO)2C6H3]2CO (III), m. 146.degree., by gradual addn. of 1 g. NaOH in 4 cc. H2O and 2.5 g. Me2SO4 to 4 g. II in 15 cc. MeOH, followed after 20-30 min. by 1.5 g. addnl. NaOH in 20 cc. H2O and 2 g. Me2CO4, filtering the alk. (NaOH) soln., drying, and crystg. from alc. I was transformed into 75-80% impure 3,4 MeO(HO)C6H3COC6H4OMe-p (IV), m. 64-8.degree. (4-acetyl deriv. m. 86-7.degree.), using anisole in the procedure described for prepg. II. IV was methylated to 3,4-(MeO)2C6H3COC6H4OMe-p (V), m. 99.degree., which was also prepd. by the sequence: p-HOC6H4CO2H + ClCO2Et .fwdarw. p-EtO2COC6H4CO2H, m. 156.degree., converted to crude chloride (VI), condensed with veratrole, and the product methylated. VI yielded 85% (p-MeOC6H4)2CO (VII), m. 144-5.degree., when treated with anisole and AlCl3 in CS2. Similarly, tricarbethoxygallic acid and anisole yielded 80% 3,4,4',5-tetramethoxybenzophenone (VIII), m. 76-7.degree.. III was reduced to [3,4-(MeO)2C6H3]2CH2 (IX), m. 71.degree., by refluxing 0.5 hr. 2.5 g. III in 20 cc. (CH2OH)2 with 2 g. NaOH and 4 cc. N2H4.H2O (of which 2 cc. was added later), the distillate removed, the temp. of the residue brought to 190.degree. 3 hrs., cooled, dild. with 2 vols. H2O, acidified, and extd. with Et2O, after evapn. of the Et2O the partially demethylated residue boiled briefly with 20 cc. MeOH contg. 1.5 g. NaOH in little H2O and 3-4 cc. Me2SO4 to isolate 1.7-1.8 g. IX by pptn. with 2 vols. H2O, cooling, and crystg. (MeOH). By the same procedure II yielded IX, IV or V yielded 3,4-(MeO)2C6H2CH2C6H4OMe-p, m. 101.degree., VII yielded 75% methane compd., m. 53.degree. (cyclohexane), and VIII yielded 85% methane compd., m. 66.degree..
IT **109091-08-9**, Benzophenone, 3,4,4',5-tetramethoxy-
(prepn. of)
RN 109091-08-9 CAPLUS
CN Methanone, (4-methoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 35 OF 35 CAPLUS COPYRIGHT 2003 ACS
AN 1959:44983 CAPLUS
DN 53:44983
OREF 53:8063b-i,8064a-i
TI Reformatskii reaction in syntheses of .omega.,.omega.-diarylalkanoic acids and related compounds
AU Klemm, L. H.; Bower, G. M.
CS Univ. of Oregon, Eugene
SO J. Org. Chem. (1958), 23, 344-8
CODEN: JOCEAH; ISSN: 0022-3263
DT Journal
LA Unavailable
AB Ph2CO and various MeO-substituted benzophenones were submitted to the Reformatskii reaction with BrCH2CO2Et (I) and BrCH2CH:CHCO2Me (II), and an attempt made to correlate the data obtained with others quoted in the literature. Following the general procedure of Gardner (C.A. 49, 12358c) 57 g. p-MeOC6H4CO2H and 41 g. MeOPh stirred 2 hrs. at 70.degree. with 540 g. polyphosphoric acid, the mixt. poured into ice H2O, the ppt. washed with 500 ml. 5% aq. NaOH and with H2O, and the dried product crystd. (alc.) yielded 75-4, g. (p-MeOC6H4)2CO (III), m. 144-6.degree.. Similarly 41 g. 3,4,5-(MeO)3C6H2CO2H, 25 g. 1,2-(MeO)2C6H4, and 430 g. polyphosphoric acid gave 36 g. 3,3' ,4,4' ,5-pentamethoxybenzophenone (IV). Zn (50 g., 20-mesh activated with HCl), 58.3 g. III, and a crystal of iodine in 400 ml. anhyd. C6H6 stirred under reflux with addn. of 70 g. I in 20 ml. C6H6, the mixt. refluxed 15 min. and dild. with 200 ml. 10% AcOH, the aq. layer extd. with C6H6, the combined org. solns. washed (H2O, excess 1.5% NH4OH, H2O), dried (MgSO4), and evapd. gave 55 g. RR'C(OH)CH2CO2Et (V, R = R' = p-MeOC6H4) (VI), m. 92-3.degree. (EtOAc). VI (14.4 g.) in 140 ml. warm dry C6H6 and 20 ml. anhyd. HCO2H refluxed 5 min., the C6H6 removed in a current of air, the residual unsatd. ester hydrogenated 30 min. in 90 ml. AcOH at 3.5-4.0 atm. with 2.5 g. 5% Pd-C, the filtered soln. evapd., and the residue crystd. yielded 83% RR'CHCH2CO2Et (VII, R = R' = p-MeOC6H4) (VIII), m. 49.5-50.5.degree. (abs. alc.), hydrolyzed 1 hr. by refluxing with 3% KOH in 75% alc., the concd. soln. acidified with HCl, and the ppt. recrystd. (abs. alc.) to give 97% RR'CHCH2CO2H (IX, R = R' = p-MeOC6H4) (X), m. 138.5-9.5.degree.. Similar hydrolysis of the residual unsatd. ester (from dehydration of 5 g. VI) yielded 4.1 g. (p-MeOC6H4)2C:CHCO2H, m. 146.5-7.5.degree. (dil. MeOH). IV and 3-MeOC6H4Bz were similarly treated in refluxing C6H6 with I. The % yields for various methoxy-substituted benzophenones in the Reformatskii reaction with I were tabulated for comparison (position of substituents, % yield of V, and over-all % yield of IX given): none, 95, -; 2, 60-70, -; 3, 95-100, 88; 4, 78, 67; 4, 4', 69, 56; 3, 3', 4, 4', 81, -; 3, 4, 4', 5, 70, -; 3, 3', 4, 4', 5, -, 59. From these results it was anticipated that diaryl ketones would react readily with II but with lower yields due to an increasing no. of possible side reactions. Zn (4.4 g., activated 20-mesh), 20 g. Ph2CO, 55 ml. dry C6H6, 35 ml. anhyd. Et2O, and a crystal of iodine treated in 1 hr. with 10 g. II in 25 ml. C6H6, the mixt. stirred and refluxed 2 hrs. with 2 g. Zn, and treated with 45 ml. 2N AcOH, the org. layer washed (5% aq. NaHCO3 and H2O), dried (Na2SO4) and evapd., the residual oil warmed 15 min. with 2 vols. anhyd. HCO2H, the mixt. evapd. in a current of air, and the residue fractionally distd. gave 32% Ph2C: CHCH:CHCO2Me (XI), m. 86-7.degree. (MeOH), refluxed 2 hrs. with a slight excess of 2% KOH in MeOH and the soln. acidified to give a quant. yield of Ph2C: CHCH: CHCO2H, m. 190-1.degree. (PhMe). XI (15 g.) in 150 ml. AcOH hydrogenated 10 min. at 3.5-4.0 atm. with 3 g. 5% Pd-C and the filtered soln. distd. gave 97% colorless Ph2CH(CH2)3CO2Me, b0.5 145-50.degree., hydrolyzed to yield quantitatively Ph2CH(CH2)3CO2H, m. 92.5-3.5.degree. (60% alc.), converted by SOCl2 to the corresponding Ph2CH(CH2)3COCl (XII). XII (from 10 g. acid and 8 ml. SOCl2) in 250 ml. purified CS2 added through the Leonard and Sentz attachment (C.A. 48,676d) in 10 hrs. with

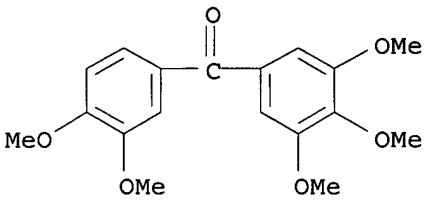
stirring and refluxing to 2.7 g. anhyd. AlCl3 in 750 ml. CS2 with addns. of 2.7 g. AlCl3 at 3-hr. intervals, the mixt. stirred 2 hrs. and dild. with H2O, the org. layer from the filtered mixt. distd. and the residue taken up in C6H6, the washed (excess 10% aq. K2CO3 and H2O), dried (MgSO4) soln. evapd., and the residue distd. at 190-200.degree./0.5 mm. yielded 5.47 g. 9-phenyl-5-benzosuberone (XIII), m. 71.0-1.5.degree. (dil. alc.); oxime, m. 152.5-3.5.degree. (C6H6-petr. ether). XIII (2 g.) submitted to Huang-Minlon-Wolff-Kishner reduction, the dild. mixt. extd. with C6H6, the H2O-washed and dried (MgSO4) ext. distd., and the liquid (1.2 g., b1.0 132-5.degree.) redistd. gave 5-phenylbenzosuberan (XIV), b2 149-50.degree., m. 41-5.degree.. PhMgBr (0.4 g. Mg, 2.4 g. PhBr, 75 ml. Et2O) treated slowly at 0.degree. (ice-bath) with 2 g. 5-benzosuberone (obtained by cyclization of PhCH2(CH2)3CO2H with polyphosphoric acid) in 20 ml. Et2O, the mixt. stirred 30 min. at 0.degree. and refluxed 1 hr., the mixt. hydrolyzed and the carbinol dehydrated with HCO2H according to Klemm and Ziffer (C.A. 50, 4094f), the product distd. at 1.5 mm. to give 0.4 g. colorless ketonic liquid (presumably starting material) and 1 g. KMnO4-reducing liquid. b1.5 115-35.degree., the alkenic fraction (0.9 g.) in 25 ml. AcOH hydrogenated 2 hrs. at 4 atm. with 0.1 g. prereduced PtO2, and the filtered soln. distd. yielded 0.56 g. XIV, b2 149-50.degree., .lambda. 3.26-3.52, 6.24, 6.71, 6.90, 13.35, 13.9, 14.35 .mu.. XIII (2.36 g.), 1.48 g. HCO2Et, and a few ml. C6H6 stirred and warmed with 0.5 g. NaH (N atm.), the red paste stirred 1.5 hrs. at 50.degree. in 10 ml. C6H6 and treated successively with 3 ml. AcOH and 30 ml. H2O, the H2O-washed C6H6 layer extd. with 100 ml. 10% aq. Na2CO3, the alk. ext. acidified, and the ppt. recrystd. (EtOAc) gave material, m. 101.5-2.5.degree., repeatedly recrystd. (C6H6-ligroine) to give 6-hydroxymethylene-9-phenyl-5-benzosuberone, m. 102.0-2.5.degree.. Attempts to apply the same conditions as used for Reformatskii reaction of II with Ph2CO to the reaction of II with the methoxy-substituted benzophenones found to condense readily with I gave only very small quantities of crude resinous products. An alternate pathway to the prepn. of diarylvaleric acids was investigated starting with VIII, prepd. by the Reformatskii reaction of III with I. LiAlH4 (3.3 g.) in 400 ml. anhyd. Et2O stirred with addn. of 29 g. VIII in 110 ml. Et2O at a rate to maintain gentle refluxing, the mixt. refluxed 1 hr., treated cautiously with EtOAc and 200 ml. cold 3N HCl, the aq. phase extd. with 150 ml. Et2, the combined Et2O solns. washed (H2O), dried (MgSO4) and evapd., the viscous residue taken up in Et2O, and the soln. kept at -5.degree. gave 85% (p-MeOC6H4)2CH(CH2)2OH (XV), m. 54-5.degree. (Et2O); 3,5-dinitrobenzoate, m. 116-17.degree. (C6H6-ligroine). XV (55 g.) in 250 ml. CCl4 at -5.degree. stirred with addn. in 2 min. of 27 g. freshly distd. PBr3, the mixt. stirred 30 min. and the soln. kept at room temp. overnight, warmed 20 min. at 50.degree. and dild. with H2O, the aq. phase extd. with CCl4, the combined CCl4 solns. washed repeatedly with H2O, the dried soln. (CaCl2) evapd. and the residue in 200 ml. abs. alc. distd. azeotropically with 20 ml. dry C6H6 until the distg. temp. reached 78.degree., the soln. refluxed 5 hrs. with NaCH(CO2Et)2 (from 4.6 g. Na, 350 ml. abs. alc., 32 g. H2C(CO2Et)2), the decanted liquid refluxed 2 hrs. with 28 g. KOH in 100 ml. H2O, the mixt. concd., dild. with H2O, washed with Et2O and acidified, the cryst. product distd. at 240-70.degree./1 mm., and the distillate crystd. (EtOAc) gave 31% (p-MeOC6H4)2CH(CH2)3CO2H, m. 103.5-4.0.degree.. By the same procedures as used with III, 15 g. Zn, 25 g. IV, and 15 g. I gave V [R = 3,4-(MeO)2 C6H3, R' = 3,4,5-(MeO)3C6H2], dehydrated with 50 ml. anhyd. HCO2H and the resultant yellow liquid hydrogenated in 200 ml. AcOH with 2 g. 30% Pd-C to give 18 g. VII [R = 3,4-(MeO)2C6H3, R' = 3,4,5-(MeO)3C6H2], m. 81.5-82.5.degree. (abs. alc.), hydrolyzed and the product purified by 2 recrystns. (C6H6-C6H14) and drying 12 hrs. at 80.degree./1 mm. to give the acid IX [R = 3,4-(MeO)2C6H3, R' = 3,4,5-(MeO)3C6H2]. Similarly 15 g. Zn, 21.2 g. p-MeOC6H4Bz and 25 g. I gave 78% V (R = Ph, R' = p-MeOC6H4), m. 79-80.degree. (EtOAc), converted by dehydration, hydrogenation, and hydrolysis to yield 86% IX (R = Ph, R'

= p-MeOC6H4), m. 120-2.degree.. Repetition of the same transformations on 8.5 g. 3-MeOC6H4Bz produced 9.1 g. crude yellow acid, m. 92-8.degree., recrystd. (EtOAc-petr. ether) to give IX (R = Ph, R' = m-MeOC6H4), m. 99-100.degree.. Following the general procedure of Huang-Minlon (C.A. 41, 1649a), 10 g. BzCH2(CH2)2CO2H, 7.5 g. NaOH, 7.5 ml. 95% N2H4, and 80 ml. (HOCH2CH2)2O gave 8.4 g. PhCH2(CH2)3CO2H, m. 56.6-7.5.degree. (Et2O-petr. ether), identical with the product obtained by Clemmensen reduction of the starting material.

IT **22699-97-4**, Benzophenone, 3,3',4,4',5-pentamethoxy-
(prepn. of)

RN 22699-97-4 CAPLUS

CN Methanone, (3,4-dimethoxyphenyl)(3,4,5-trimethoxyphenyl)- (9CI) (CA INDEX NAME)



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FILE 'REGISTRY' ENTERED AT 08:21:21 ON 01 APR 2003
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L1 1 S E3

FILE 'CAPLUS' ENTERED AT 08:23:53 ON 01 APR 2003
L2 7 S L1
L3 3 S CANCER AND L2

FILE 'REGISTRY' ENTERED AT 09:02:57 ON 01 APR 2003
L4 STRUCTURE UPLOADED
L5 0 S L4
L6 21 S L4 FULL

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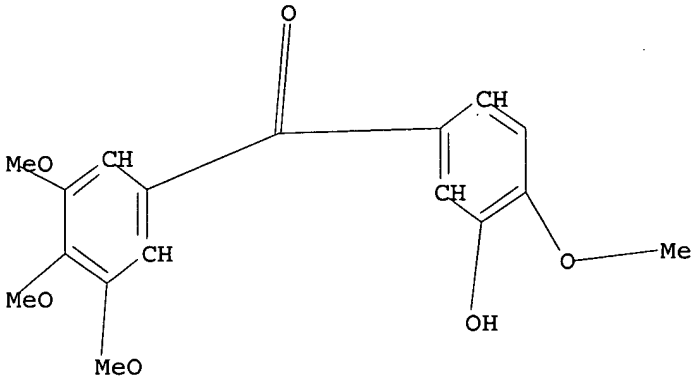
L7 35 S L6

FILE 'REGISTRY' ENTERED AT 09:18:37 ON 01 APR 2003
L8 STRUCTURE UPLOADED
L9 0 S L8
L10 1 S L8 FUL

FILE 'CAPLUS' ENTERED AT 09:19:11 ON 01 APR 2003
L11 7 S L10

=> d l8
L8 HAS NO ANSWERS
L8 STR



G1 Me,Et,n-Pr,i-Pr,P

Structure attributes must be viewed using STN Express query preparation.

=> d bib abs 1-7

L11 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 2002:348358 CAPLUS
DN 137:87838
TI Antineoplastic Agents. 465. Structural Modification of Resveratrol: Sodium Resverastatin Phosphate
AU Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J. Charles; Schmidt, Jean M.
CS Cancer Research Institute and Department of Chemistry and Biochemistry,

Arizona State University, Tempe, AZ, 85287-2404, USA
SO Journal of Medicinal Chemistry (2002), 45(12), 2534-2542
CODEN: JMCMAR; ISSN: 0022-2623
PB American Chemical Society
DT Journal
LA English
OS CASREACT 137:87838
AB As an extension of structure/activity investigations of resveratrol, phenstatin, and the cancer antiangiogenesis drug sodium combretastatin A-4 phosphate, syntheses of certain related stilbenes and benzophenones were undertaken. The tri-Me ether deriv. of (Z)-resveratrol exhibited the strongest activity (GI50 = 0.01-0.001 .mu.g/mL) against a minipanel of human cancer cell lines. A monodemethylated deriv. was converted to prodrug (sodium resverastatin phosphate) for further biol. evaluation. The antitubulin and antimicrobial activities of selected compds. were also evaluated.
RE.CNT 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 2001:617806 CAPLUS
DN 135:175360
TI Antiangiogenic combinations of nitroacridine derivs. and inhibition of tumor growth and metastasis and compositions thereof
IN Raj, Tiwari; Miller, Daniel; Konopa, Jerzy Kazimierz; Wysocka-Skrzela, Barbara
PA New York Medical College, USA
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001060351	A2	20010823	WO 2001-US5276	20010216
WO 2001060351	A3	20020124		
W: AL, AU, BA, BG, BR, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002037831	A1	20020328	US 2001-789496	20010216
EP 1261325	A2	20021204	EP 2001-910944	20010216
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI US 2000-183529P	P	20000218		
WO 2001-US5276	W	20010216		

AB The invention is directed to 1-nitroacridine derivs. as antiangiogenic substances and use in tumor growth and metastasis. Inhibitor(s) compns. as well as methods for using said compns. for inhibiting or preventing tumor growth, particularly, prostate cancer cells growth and metastases are presented.

L11 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 2000:592560 CAPLUS
DN 133:198575
TI Compositions and methods for use in targeting vascular destruction
IN Pero, Ronald W.; Sherris, David
PA Oxigene, Inc., USA
SO PCT Int. Appl., 36 pp.

CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000048606	A1	20000824	WO 2000-US3996	20000216
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2358925	AA	20000824	CA 2000-2358925	20000216
EP 1152764	A1	20011114	EP 2000-914606	20000216
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002537262	T2	20021105	JP 2000-599398	20000216
US 6538038	B1	20030325	US 2000-505402	20000216
PRAI US 1999-120478P	P	19990218		
WO 2000-US3996	W	20000216		

OS MARPAT 133:198575
AB Treatment of warm-blooded animals having a tumor or non-malignant hypervascularization, by administering a sufficient amt. of a cytotoxic agent formulated into a phosphate prodrug form having substrate specificity for microvessel phosphatases, so that microvessels are destroyed preferentially over other normal tissues, because the less cytotoxic prodrug form is converted to the highly cytotoxic dephosphorylated form.
RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 2000:454837 CAPLUS
DN 133:234061
TI Comparative molecular field analysis of colchicine inhibition and tubulin polymerization for combretastatins binding to the colchicine binding site on .beta.-tubulin
AU Brown, M. L.; Rieger, J. M.; Macdonald, T. L.
CS Chemistry Department, University of Virginia, Charlottesville, VA, 22904-4319, USA
SO Bioorganic & Medicinal Chemistry (2000), 8(6), 1433-1441
CODEN: BMECEP; ISSN: 0968-0896
PB Elsevier Science Ltd.
DT Journal
LA English
AB A mol. modeling study using Comparative Mol. Field Anal. (CoMFA) was undertaken to develop a predictive model for combretastatin binding to the colchicine binding site of tubulin. Furthermore, we examd. the potential contribution of lipophilicity (log P) and mol. dipole moment and were unable to correlate these properties to the obsd. biol. data. In this study we first confirmed that tubulin polymn. inhibition (IC50) correlated (R2=0.92) with [3H]colchicine displacement. Although these data correlated quite well, we developed two independent models for each set of data to quantify structural features that may contribute to each biol. property independently. To develop our predictive model we first examd. a series of mol. alignments for the training set and ultimately found that overlaying the resp. trimethoxyphenyl rings (A ring) of the analogs generated the best correlated model. The CoMFA yielded a cross-validated

R2=0.41 (optimum no. of components equal to 5) for the tubulin polymn. model and an R2=0.38 (optimum no. of components equal to 5) for [3H]colchicine inhibition. Final non-cross-validation generated models for tubulin polymn. (R2 of 0.93) and colchicine inhibition (R2 of 0.91). These models were validated by predicting both biol. properties for compds. not used in the training set. These models accurately predicted the IC50 for tubulin polymn. with an R2 of 0.88 (n=6) and those of [3H]colchicine displacement with an R2 of 0.80 (n=7). This study represents the first predictive model for the colchicine binding site over a wide range of combretastatin analogs.

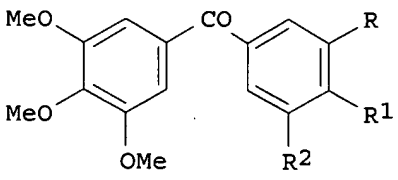
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 1999:567462 CAPLUS
DN 132:180406
TI Synthesis of combretastatin A-4 derivatives, phenstatin, phakellistatin 5, and an approach to dolastatin 17
AU Toki, Brian Eric
CS Arizona State Univ., Tempe, AZ, USA
SO (1999) 369 pp. Avail.: UMI, Order No. DA9924211
From: Diss. Abstr. Int., B 1999, 60(3), 1093
DT Dissertation
LA English
AB Unavailable

L11 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 1999:451177 CAPLUS
DN 131:73506
TI Synthesis and formulation of phenstatin and related prodrugs for use as antitumor agents
IN Pettit, George R.; Toki, Brian
PA Arizona State University, USA
SO PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9934788	A1	19990715	WO 1999-US475	19990109
	W: CA, JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2314510	AA	19990715	CA 1999-2314510	19990109
	EP 1045689	A1	20001025	EP 1999-902133	19990109
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
	JP 2002500184	T2	20020108	JP 2000-527239	19990109
PRAI	US 1998-70878P	P	19980109		
	WO 1999-US475	W	19990109		

OS MARPAT 131:73506
GI

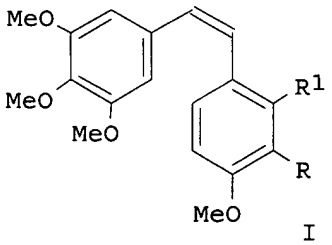


I

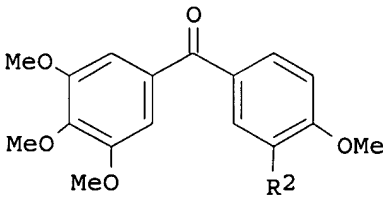
AB Phenstatin I (R = H, R1 = OMe, R2 = OH) and related prodrugs I [R = H, OMe, Me, Cl, F; R1 = H, OMe; R2 = OPO3Na2, OPO3H2, OAc, OMe, Me, Cl, F; R1R2 = OCH2O] were prepd. and formulated for use as antineoplastic agents. Thus, phenstatin was converted to the sodium phosphate prodrug I (R = H, R1 = OMe, R2 = OPO3Na2) by a dibenzylphosphite phosphorylation and subsequent hydrogenolysis sequence. Phenstatin was found to be a potent inhibitor of tubulin polymn. and the binding of colchicine to tubulin comparable to combretastatin A-4.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 1998:253141 CAPLUS
DN 128:230173
TI Antineoplastic Agents. 379. Synthesis of Phenstatin Phosphate
AU Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; Hamel, Ernest; Pettit, Robin K.
CS Cancer Research Institute and Department of Chemistry, Arizona State University, Tempe, AZ, 85287-1604, USA
SO Journal of Medicinal Chemistry (1998), 41(10), 1688-1695
CODEN: JMCMAR; ISSN: 0022-2623
PB American Chemical Society
DT Journal
LA English
GI



I



II

AB A structure-activity relationship (SAR) study of the South African willow tree (Combretum caffrum) antineoplastic constituent combretastatin A-4 (I; R = OH, R1 = H) directed at maintaining the (Z)-stilbene relationship of the olefin di-Ph substituents led to synthesis of a potent cancer cell growth inhibitor designated phenstatin (II; R2 = OH). Initially phenstatin silyl ether (II; R2 = OSiMe2CMe3) was unexpectedly obtained by Jacobsen oxidn. of combretastatin A-4 silyl ether (I; R = OSiMe2CMe2, R1 = H), and the parent phenstatin (II; R2 = OH) was later synthesized in quantity. Phenstatin was converted to the sodium phosphate prodrug [II; R2 = OP(O)(ONa)2] by a dibenzyl phosphite phosphorylation and subsequent hydrogenolysis sequence. Phenstatin (II; R2 = OH) inhibited growth of the pathogenic bacterium Neisseria gonorrhoeae and was a potent inhibitor of tubulin polymn. and the binding of colchicine to tubulin comparable to combretastatin A-4 (I; R = OH, R1 = H). Interestingly, the prodrugs were found to have reduced activity in these biochem. assays. While no significant tubulin activity was obsd. with the phosphorylated deriv. of combretastatin A-4 (I; R = OH, R1 = H), phosphate II [R2 = OP(O)(ONa)2] retained detectable inhibitory effects in both assays.

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=> d his

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L1             1 S E3

     FILE 'CAPLUS' ENTERED AT 08:23:53 ON 01 APR 2003
L2             7 S L1
L3             3 S CANCER AND L2

     FILE 'REGISTRY' ENTERED AT 09:02:57 ON 01 APR 2003
L4               STRUCTURE UPLOADED
L5             0 S L4
L6            21 S L4 FULL

     FILE 'CAPLUS' ENTERED AT 09:03:47 ON 01 APR 2003
L7            35 S L6

     FILE 'REGISTRY' ENTERED AT 09:18:37 ON 01 APR 2003
L8               STRUCTURE UPLOADED
L9             0 S L8
L10            1 S L8 FUL

     FILE 'CAPLUS' ENTERED AT 09:19:11 ON 01 APR 2003
L11            7 S L10

     FILE 'BEILSTEIN' ENTERED AT 09:20:01 ON 01 APR 2003

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FULL SEARCH INITIATED 09:20:22 FILE 'BEILSTEIN'
FULL SCREEN SEARCH COMPLETED -    418 TO ITERATE

100.0% PROCESSED     418 ITERATIONS                          1 ANSWERS
SEARCH TIME: 00.00.07

L12            1 SEA SSS FUL L8

=> d all


L12  ANSWER 1 OF 1 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

     Beilstein Records (BRN):        7938813
     Chemical Name (CN):             phenstatin
     Autonom Name (AUN):             (3-hydroxy-4-methoxy-phenyl)-(3,4,5-
                                     trimethoxy-phenyl)-methanone
     Molec. Formula (MF):            C17 H18 O6
     Molecular Weight (MW):          318.33
     Lawson Number (LN):             10221, 289
     Compound Type (CTYPE):          isocyclic
     Constitution ID (CONSID):       6766104
     Tautomer ID (TAUTID):           7513200
     Beilstein Citation (BSO):       6-08
     Entry Date (DED):               1998/11/09
     Update Date (DUPD):             2002/10/21
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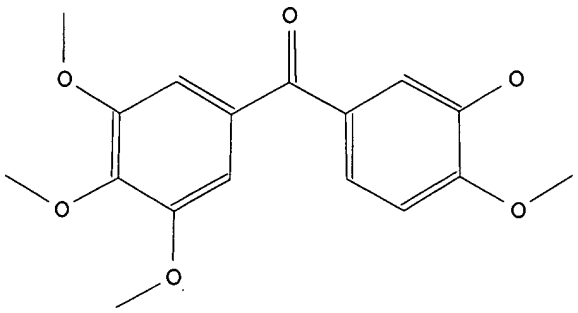

Field Availability:

Code	Name	Occurrence
BRN	Beilstein Records	1
CN	Chemical Name	1
AUN	Autonomname	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	2
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
BSO	Beilstein Citation	1
ED	Entry Date	1
UPD	Update Date	1
CDEN	Density (Crystal)	1
CRYPH	Crystal Phase	1
CSG	Crystal Space Group	1
CSYS	Crystal System	1
IR	Infrared Spectrum	1
MP	Melting Point	1
MS	Mass Spectrum	1
NMR	Nuclear Magnetic Resonance	3
PHARM	Pharmacological Data	9

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	3
RXREA	Substance is Reaction Reactant	2
RXPRO	Substance is Reaction Product	1

Melting Point:

Value (MP) (Cel)	Solvent (.SOL)	Ref.
149 - 150	ethyl acetate, hexane	1

Reference(s):

1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Crystal Phase:
CRYPH
Description (.KW): Crystal structure determination
Note(s) (.COM): beta=104.7 grad, a=12.61 Angstroem, b=14.86 Angstroem, c=8.74 Angstroem, n=4., Temperature: 25 C. Method of determination: Single Crystal X-ray Diffraction
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Crystal System:
CSYS
CSYS: monoclinic
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Crystal Space Group:
CSG
CSG: C52h
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Crystal Density:

Value (CDEN) (g/cm**3)	Ref.
1.299	1

Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Nuclear Magnetic Resonance:
NMR
Description (.KW): Chemical shifts
Nucleus (.NUC): 1H
Solvents (.SOL): CDCl3
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785
NMR
Description (.KW): Chemical shifts
Nucleus (.NUC): 13C
Solvents (.SOL): CDCl3
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

NMR
Description (.KW): Spin-spin coupling constants
Solvents (.SOL): CDCl3
Note(s) (.COM): 1H-1H
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Infrared Spectrum:

Description (.KW)	Solvent (.SOL)	Ref.	Note
Bands	nujol	1	1

Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Notes(s):
1. 1633 - 1604 cm**(-1)

Mass Spectrum:
MS
Description (.KW): spectrum, electron impact (EI)
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Pharmacological Data:
PHARM
Effect (.E): cytotoxicity
Species or Test-System (.SP): mouse leukemia P388 cells
Method, Remarks (.MR): in vitro; inhibition of cell growth evaluated; 10 percent horse serum/Fisher media; incubated for 48 h
Type (.TYP): ED50
Value of Type (.V): 3.3E-3 mg/l
Reference(s):
1. Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J.-Charles; Schmidt, Jean M., J.Med.Chem., CODEN: JMCMAR, 45(12), <2002>, 2534 - 2542; BABS-6350683
PHARM
Effect (.E): cytotoxicity
Species or Test-System (.SP): human CNS cancer SF-268 cells
Method, Remarks (.MR): in vitro; inhibition of cell growth assessed using NCI standard sulforhodamine B assay after incubation for 48 h
Further Details (.FD): GI50: conc. causing 50 percent reduction in net protein increase
Type (.TYP): GI50
Value of Type (.V): 5.2E-2 mg/l
Reference(s):
1. Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J.-Charles; Schmidt, Jean M., J.Med.Chem., CODEN: JMCMAR, 45(12), <2002>, 2534 - 2542; BABS-6350683

PHARM
Effect (.E): cytotoxicity
Species or Test-System (.SP): human lung-NSC cancer NCI-H460 cells
Method, Remarks (.MR): in vitro; inhibition of cell growth assessed using NCI standard sulforhodamine B assay after incubation for 48 h
Further Details (.FD): GI50: conc. causing 50 percent reduction in net protein increase
Type (.TYP): GI50
Value of Type (.V): 5.7E-3 mg/l
Reference(s):
1. Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J.-Charles; Schmidt, Jean M., J.Med.Chem., CODEN: JMCMAR, 45(12), <2002>, 2534 - 2542; BABS-6350683

PHARM
Effect (.E): cytotoxicity
Species or Test-System (.SP): human colon cancer KM20L2 cells
Method, Remarks (.MR): in vitro; inhibition of cell growth assessed using NCI standard sulforhodamine B assay after incubation for 48 h
Further Details (.FD): GI50: conc. causing 50 percent reduction in net protein increase
Type (.TYP): GI50
Value of Type (.V): 4.0E-2 mg/l
Reference(s):
1. Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J.-Charles; Schmidt, Jean M., J.Med.Chem., CODEN: JMCMAR, 45(12), <2002>, 2534 - 2542; BABS-6350683

PHARM
Effect (.E): antimitotic
Species or Test-System (.SP): tubulin
Method, Remarks (.MR): in vitro; inhibition of tubulin polymerization assessed; 30 deg C; incubated for 20 min; extent of assembly measured
Type (.TYP): IC50
Value of Type (.V): 1.1 .my.mol/l
Reference(s):
1. Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J.-Charles; Schmidt, Jean M., J.Med.Chem., CODEN: JMCMAR, 45(12), <2002>, 2534 - 2542; BABS-6350683

PHARM
Effect (.E): receptor; binding activity
Species or Test-System (.SP): tubulin
Concentration (.C): 2 - 5 .my.mol/l
Method, Remarks (.MR): in vitro; inhibition of colchicine binding to colchicine site of tubulin evaluated; 5.0 .my.mol/l <3H>colchicine used as radioligand; 37 deg C; incubated for 10 min
Results (.RE): title comp. inhibited colchicine binding by 73/85 percent at 2/5 .my.mol/l
Reference(s):
1. Pettit, George R.; Grealish, Matthew P.; Jung, M. Katherine; Hamel, Ernest; Pettit, Robin K.; Chapuis, J.-Charles; Schmidt, Jean M., J.Med.Chem., CODEN: JMCMAR, 45(12), <2002>, 2534 - 2542; BABS-6350683

PHARM
Note(s) (.COM): inhibition of the pathogenic bacterium Neisseria gonorrhoeae
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10),

<1998>, 1688-1695; BABS-6093785

PHARM

Note(s) (.COM): inhibition of bovine brain tubulin polymerization (IC50: 1.0 .my.M) and inhibition of colchicine binding to tubulin

Reference(s):

1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

PHARM

Note(s) (.COM): cytotoxic activity: inhibition of human tumor in the NCI 60 cell line; inhibition of murine P388 lymphocytic leukemia cell line and growth of human cancer cell line (OVCAR-3, SF-295, A498, NCI-H460, KM20L2 and SK-MEL-5)

Reference(s):

1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Reaction:

RX

Reaction ID (.ID): 4907222
Reactant BRN (.RBRN): 7945907
Reactant (.RCT): <3-(tert-butyl-dimethyl-silanyloxy)-4-methoxy-phenyl>-(3,4,5-trimethoxy-phenyl)-methanone
Product BRN (.PBRN): 7938813
Product (.PRO): (3-hydroxy-4-methoxy-phenyl)-(3,4,5-trimethoxy-phenyl)-methanone
No. of React. Details (.NVAR): 1

Reaction Details:

RX

Reaction RID (.RID): 4907222.1
Reaction Classification (.CL): Preparation
Reagent (.RGT): TBAF
Solvent (.SOL): tetrahydrofuran
Time (.TIM): 15 min

Reference(s):

1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Reaction:

RX

Reaction ID (.ID): 4877772
Reactant BRN (.RBRN): 7938813, 385737
Reactant (.RCT): (3-hydroxy-4-methoxy-phenyl)-(3,4,5-trimethoxy-phenyl)-methanone, acetic acid anhydride
Product BRN (.PBRN): 7947149
Product (.PRO): acetic acid 2-methoxy-5-(3,4,5-trimethoxy-benzoyl)-phenyl ester
No. of React. Details (.NVAR): 1

Reaction Details:

RX

Reaction RID (.RID): 4877772.1
Reaction Classification (.CL): Preparation

Yield (.YDT): 93 percent (BRN=7947149)
Reagent (.RGT): DMAP, Et3N
Solvent (.SOL): CH2Cl2
Time (.TIM): 30 min
Other Conditions (.COND): Ambient temperature
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

Reaction:
RX
Reaction ID (.ID): 4869852
Reactant BRN (.RBRN): 7938813, 1982794
Reactant (.RCT): (3-hydroxy-4-methoxy-phenyl)-(3,4,5-trimethoxy-phenyl)-methanone, phosphonic acid dibenzyl ester
Product BRN (.PBRN): 7959883
Product (.PRO): phosphoric acid dibenzyl ester 2-methoxy-5-(3,4,5-trimethoxy-benzoyl)-phenyl ester
No. of React. Details (.NVAR): 1

Reaction Details:
RX
Reaction RID (.RID): 4869852.1
Reaction Classification (.CL): Preparation
Yield (.YDT): 72 percent (BRN=7959883)
Reagent (.RGT): BrCCl3, Et3N, DMAP
Solvent (.SOL): dimethylformamide, acetonitrile
Time (.TIM): 1.5 hour(s)
Temperature (.T): -10 - -7 Cel
Reference(s):
1. Pettit, George R.; Toki, Brian; Herald, Delbert L.; Verdier-Pinard, Pascal; Boyd, Michael R.; et al., J.Med.Chem., CODEN: JMCMAR, 41(10), <1998>, 1688-1695; BABS-6093785

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